ILLINOIS

June, 1945

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1945 Annual Meeting Cancelled

In This Issue

The Coronary Outlook

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Tuberculosis, A New Post War Public Health Problem

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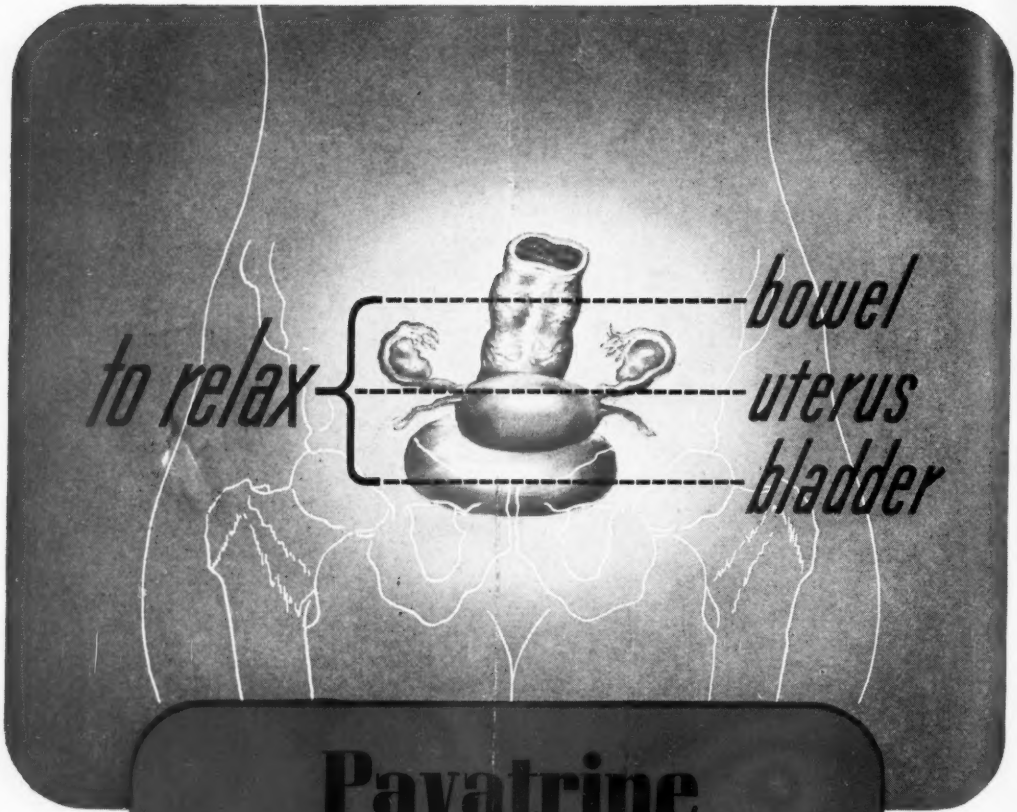

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RESEARCH IN THE SERVICE OF MEDICINE

The Illinois Medical Journal

June, 1945

VOL. 87, NO. 6

Official Journal of the Illinois State Medical Society

EDITOR — Harold M. Camp. EDITORIAL BOARD — James H. Hutton, Chairman, Frederick H. Falls, Josiah J. Moore, Edwin M. Miller, Chauncey C. Maher, Harry S. Gradle, Harry Culver, Walter Stevenson, Raymond W. McNealy.

Editorials

THE NEW WAGNER BILL

It has been stated frequently in recent months that Senator Wagner would introduce in the near future, a new Wagner Bill as a substitute for the previously introduced Wagner-Murray-Dingell Bill. On May 24, Senator Wagner and Congressman Dingell introduced the bill and the preliminary reports have appeared in the daily press.

In the new bill contributions would increase to 4% on workers' pay and 4% on the employers' payrolls. The bill provides for an expanded unemployment insurance with the benefits uniform throughout the country. As was expected the bill provides a wide system of health insurance and all workers covered by social security would be compelled to subscribe. Unlike the previous Wagner-Murray-Dingell Bill some fifteen million farm workers, domestics, professional people and those in small business ventures would come under the Act.

Provisions are made according to the press reports, whereby there would be established a ten year program with federal and state appropriations financing hospitals, health centers and clinics in rural areas. Workers would receive compensation for those periods when they were disabled from illness or disability and would be entitled to 60 days hospitalization each year.

Senator Wagner, it is said, in discussing the bill, declared that it would provide for a choice of physician or dentist and they on the other hand could select their own patients so he does not consider this as being objectionable socialized medicine or the regimentation of physicians. He said that existing health and hospital insurance plans would not be affected by the bill.

At the time this is written no copies of the bill have become available, but the medical profession throughout the country will be interested in this bill which most likely will be as objectionable as any former bills introduced having similar objectives. In recent months the medical profession has heard much relative to the Wagner-Murray-Dingell Bill, the Dingell Bill, proposals of Senator Pepper. Senator Pepper in a recent broadcast from New York on February 7, 1945, informed the American people that there would be no half way measures, but that the American public must receive complete medical care to include hospitalization, general medical care and the use of all modern diagnostic and preventive medical and dental care.

We often wonder when statements of this type are made if the speaker actually knows all that can be included in a complete examination, with x-ray examinations of all parts of the body, blood chemistry determinations, cystoscopic, bronchoscopic and other procedures, in addition to the many other things that are occasionally necessary in rare cases but not needed at all as a part of the usual examination. If hospitals are established in rural districts and health centers

and clinics are set up, it is quite obvious that in war time there would be no physicians available to man these many institutions, and in normal times the supply would be entirely inadequate to give "complete" care to all comers.

With the multi-billion dollar programs envisioned in such measures as the new Wagner Bill, it would seem more appropriate in cases where the patient or members of the family were unable to pay for the so-called "complete" care, to provide through insurance channels, policies for these people so that they could remain independent and have the physician of choice plus specialists when indicated. This could be done without requiring the approval of swivel chair administrators many miles away telling who could or could not be responsible for their care and whether or not they really needed a specialist. At this time many new prepayment medical care plans are being set up which should care for those in low income groups and which should help them materially especially in cases of "catastrophic" illness.

As for the non-workers, once more they are not considered in the proposed legislation. Their care would remain where it has been over a long period of time. A more critical analysis should be forthcoming and published in the next issue of the Illinois Medical Journal.

DOCTORS AT WAR

Now that the European War is over much can be told relative to the part the doctor has played in the successful conquest of Germany, how preparations were made well in advance of the various forward movements, how they prepared for D-Day, and the anticipated number of casualties. Sixteen leading authorities contributed chapters in the recently published book, "Doctors at War" edited by Morris Fishbein, editor of the Journal of the A.M.A., and they tell the story in a graphic way of the many preparations which were made. The writers were the men responsible for the organizing of this medical service.

Many interesting stories are told in the book which should be read not only by physicians everywhere, but by patients of these doctors who have once more proven that modern wars cannot be successfully concluded without well organ-

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ized medical services planned well in advance of the outbreak of hostilities and before any campaign of advancement is undertaken.

Physicians in the United States can point with pride to the accomplishments of the medical corps with our armed forces and also to the fact that these 60,000 medical officers came from a country where there is no federal subsidization of medicine as is the case in so many other countries. Interesting stories of the work of the medical officers at Guadalcanal and Tarawa are told where many makeshift methods were substituted for the care of casualties in foxholes, on the beaches and any other places where they fell and where it was not always possible to have modern equipment on the spot at the moment.

The importance of the Air Forces and the work of the physicians attached to these services as related in the book by Major General David N. W. Grant, the Air Surgeon, is highly interesting. These medical officers had all received special training to enable them to solve the many problems in care which were arising constantly. Parents of the boys in service will read many of these stories with great interest and be thankful that their boys are with armies which are provided with the best medical talent to be found anywhere. They will be interested in the comparative statistics of mortality from disease and injuries of the first World War and the present conflict.

The many improvements in medical and surgical care since the atrocious raid on Pearl Harbor on December 7, 1941 will be extremely interesting to everyone. It has long been known that modern warfare invariably brings out many developments from the thousands of research projects which are under way and are multiplied so materially under stress of war.

Now that millions of men can be released from the European Theater and transported in larger numbers to the Pacific area it is quite obvious that much more rapid progress can be made there, and our two-ocean warfare becomes a concentrated effort to whip the Japs. Today with the many hundreds of bombers raiding the Japanese homeland each day with their inevitable destruction and the overwhelming forces which can now be made available for this concentrated drive, the Pacific war should be shortened materially.

During the past year we have seen D-Day and V-E Day, and we will all be looking forward to the greatest of all days to come for the American people — V-J Day, and the return of the armed forces to civilian life.

BALTIMORE KILLS BILL TO PROHIBIT USE OF DOGS IN RESEARCH

The Baltimore city council recently killed a proposed ordinance which would have prohibited the use of live dogs for experimental purposes in medical schools and laboratories of that city. Commenting on the council's action, *The Journal of the American Medical Association* for May 19 says:

"Baltimore is to be congratulated on this victory for reason and science over the sinister forces arrayed against medical research and the progress of medical science. The tragedy is that the fight in Baltimore will have to made again and again before state legislatures, city councils and the Congress. Ignorance, fanaticism, false sentimentalism and cynica irresponsibility are diseases for which science has thus far failed to find a remedy, even with the use of experimentation on animals that has yielded so much good to both animals and man."

A three hour hearing preceded the council's action on the ordinance. The most effective testimony was the introduction of two children and the mother of a third whose lives had been saved through a new type of operation by Dr. Alfred Blalock of Johns Hopkins Hospital. Dr. Blalock had worked out his blood vessel surgical technic by experimenting on dogs and, as a result, his method saved the lives of three children, who were born with malformed hearts.

Correspondence

FALL REFRESHER COURSE IN LARYNGOLOGY, RHINOLOGY AND OTOLOGY

The University of Illinois College of Medicine announces its sixth semi-annual Refresher Course in Laryngology, Rhinology and Otology, September 24th through September 29th, 1945, at the College, in Chicago. The course is intensive and largely didactic, but some clinical instruction is also provided.

It is especially suited to specialists unable to devote a longer period for advanced instruction and to others seeking a comprehensive review of the field of otorhino-laryngology. The number of registrants will be limited. It is therefore desirable to apply for registration immediately. The fee is $50. When applying, give full details as to school, and year of graduation, post graduate training, college degrees, etc. Write to Dr. A. R. Hollender, Chairman, Refresher Course Committee, Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

INTERNAL MEDICINE SOCIETY ANNOUNCES NEW OFFICERS

At the Annual Meeting of the Chicago Society of Internal Medicine held May 21st, the following officers were elected:

President ..... Samuel Soskin, M.D.
Vice-President .... Laurence E. Hines, M.D.
Secty.-Treas. ..... Howard L. Alt, M.D.

CHICAGO GYNECOLOGICAL ELECTS NEW OFFICERS

At the Annual Meeting of the Chicago Gynecological Society held May 18, 1945, the following officers were elected:

President ..... James E. Fitzgerald, M.D.
President-Elect ..... Ralph A. Reis, M.D.
Vice-President .... Eugene A. Edwards, M.D.
Secretary ..... Herbert E. Schmitz, M.D.
Treasurer ..... Henry Buxbaum, M.D.
Editor ..... Philip H. Smith, M.D.
Pathologist ..... Robert M. Grier, M.D.

NEW DRUG HOLDS PROMISE IN TREATMENT OF TYPHOID FEVER

A promising new drug, related to penicillin in its germ-killing power, has been found useful in the treatment of typhoid—a disease for which heretofore there has not been a treatment of any value, it is reported in *The Journal of the American Medical Association* for May 19.

Hobart A. Reimann, M.D., William F. Elias, Ph.D., and Alison H. Price, M.D., Philadelphia, studied effects of the drug during a local typhoid epidemic in December 1944. About 60 cases with 8 deaths were reported during the epidemic, all of them arising from a typhoid carrier in a bakery. Because amounts of the drug were limited, only five patients were selected for treatment and study.

The drug, streptomycin, is a nontoxic substance which, like penicillin, has an inhibiting or destroying action upon bacterial growth. It acts, however, upon some disease producing bacilli on which penicillin has no effect, including Eberthella typhosa, the microbe which causes typhoid.

Of the 5 patients treated by hypodermic injection with streptomycin, recovery took place in 3 during treatment. The authors point out that different strains of this germ vary in their resistance to streptomycin. This may explain why not all of the patients responded to the new treatment.

★ BUY ANOTHER BOND ★

State Department of Public Health

STATE PUBLIC HEALTH SERVICE

The Second of Two Articles on the History of the State Department of Public Health

Roland R. Cross, M.D., Director

It is important to observe that even after the creation of the State Board of Health in 1877, the General Assembly was skeptical as to what it could do and the benefits that might be derived therefrom. This attitude is revealed by the fact that the appropriation to the Board for the first year was only $5000 and at no time prior to 1900 did the annual appropriation for ordinary operating expenses exceed $12,000. Manifestly little could be done on a State-Wide program with such niggardly resources.

It is significant to observe, also, that from the very outset in Territorial days there was and still exists to some extent a dual conception of the basic prineiple of public health service. One is that good doctors is the dominant factor necessary to good public health; that if we have only good doctors and plenty of them, the solution of health problems will take care of itself. The other conception is that over and above the availability of good doctors there is a need for organized effort to stimulate the use of medical service along preventive lines and to promote sanitation and the kind of behavior and practices which will result in healthful living.

After the enactment of the laws in 1877 the "good doctor" conception dominated the activities of the State Board of Health during the forty years of its existence. While the Board gradually took on other functions such as diagnostic laboratory service, sanitary engineering, popular health education, the distribution of curative and preventive biologics and the collection and study of vital records, its principal activity embracing two-thirds of its energy and resources, was the licensing of physicians and the regulation of medical education. That function was, of course, very important and grew increasingly so with the rapid growth of medical knowledge. By the same token the other functions and potential functions of the Board, which were of great value to the public health, grew in both importance and magnitude.

Among the advancements in scientific knowledge of great significance to the public health movement which took place during the life of the State Board of Health, 1877-1917, were the following:

The identification of such germs as those that cause diphtheria, typhoid fever, cholera, tuberculosis, gonorrhea, syphilis and several others; the discovery of the part played by mosquitoes in the spread of malaria and yellow fever; the development of the blood test for syphilis and the Schick test for diphtheria and of various curative and preventive biologics such as diphtheria antitoxin and toxin-antitoxin, typhoid fever vaccine, anti-rabic vaccine and the antiluetic drugs; the development of methods for the purification of water and the sanitary treatment and disposal of sewage; the introduction of milk pasteurization. These and many other advancements provided a big field of opportunity and posed an overshadowing challenge to those interested in public health service.

For these reasons and in response to popular demand, the State Board of Health was dissolved in 1917 and the official responsibilities for the enforcement of the Medical Practice Act and for public health services were divorced. In that year the Civil Administrative Code, creating de-

partments to replace innumerable boards and commissions, was adopted. The responsibility for the licensing of physicians, as well as all other professions and trades, was placed in the Department of Registration and Education. The Department of Public Health replaced the State Board of Health on July 1, 1917, and since that time has been responsible only for the official public health program of the State.

When the State Department of Public Health was created in 1917, the organizational structure that still prevails was established. At the head was placed an executive officer known as the Director. Under the administrative control of the Director, the law provided for seven divisions. These were as follows: General Office, Communicable Diseases, Tuberculosis, Sanitation, Diagnostic Laboratory, Vital Statistics and Lodging House Inspection.

A total of 57 employees, including the Director, was provided for in the appropriation.

As pointed out previously, the actual performance of functions implied in this original organization of the Department ran ahead of the legal recognition of the need in the form of earmarked appropriations. Thus the systematic collection, compilation and study of birth and death reports began in 1903. A diagnostic laboratory was started in 1904 and a bureau of communicable disease control in 1915 and a bureau of sanitary engineering in the same year. In 1916 a bureau of child hygiene and public health nursing was created. The later identification of these functions as divisions and their emergence as integral parts of the Department's organization bears witness of the evolutionary growth of the Department.

Historically the importance of the creation by law of the Department of Public Health in 1917 cannot be over-emphasized. It was an official recognition not only that the protection of the public health is a primary responsibility of the government but that the availability of knowledge, trained personnel and other facilities was sufficient to justify an official agency devoted entirely to public health service.

Dating from 1917, the history of the public health program in Illinois is a story of the growth of the State Department of Public Health in magnitude, activities and influence as the central directing force of public health service in the State. From an organization consisting of about 50 employees in 1917, the Department has grown to one that now has a personnel of about 800. The appropriations to the Department by the General Assembly have increased from $221,000 to approximately $2,000,000 per year ($3,983,988 for the biennium ending June 30, 1947.) In addition to the money appropriated by the State, the Department has available from Federal sources for the fiscal year ending June 30, 1945, a total of $1,206,600. The grand total available to the Department for that year is $2,823,025, more than ten times the amount at the command of the Department in its first year of life in 1917. This growth in financial resources is a tangible measure of steady increase of popular interest in and demand for more and better health protection and of the confidence of the General Assembly and of the State Administration in the public health service as reflected in the program of the Department. It indicates, also, of course, the continued development, acquisition and expansion of scientific knowledge of practical and beneficial use in the field of public health.

Subsequent to 1917, perhaps the most important and far-reaching influence on the Department of Public Health was the enactment by Congress of the Social Security Act. Under the provisions of that law a considerable sum of Federal money, as referred to above, was made available annually to Illinois for public health purposes. About $250,000 of this money comes from the Childen's Bureau and is earmarked for maternal and child health services. About $425,000, comes from the U. S. Public Health Service and can be used for public health purposes generally. Another $400,000, approximately, comes from the U. S. Public Health Service also and is appropriated by Congress specifically for the control of venereal diseases.

A very significant factor in the grants by the Federal government is that their acceptance established in Illinois not only a close and effective effort between State and Federal agencies in matters of public health, but also the principle of grants-in-aid by the State to local public health departments in Illinois. The latter not only brings State and local health departments into closer, cooperative working relations but the ability to provide financial aid gives the State Department of Public Health a very

important and fruitful means of stimulating improvement and expansion in local health departments.

Another event of outstanding importance was the passage in 1943 by the State General Assembly of a law that permits counties to establish and maintain their own autonomous health departments. The enactment of that law brought into climactic focus the home rule principle of government in Illinois and placed the State Department of Public Health on official record to function on that principle as a matter of established policy. Up until about 1940, the trend of development in public health service in Illinois had been toward a strong, centralized State health agency. The services of the Department of Public Health were rendered directly to the people by the several divisions in the Department. This trend was reversed in 1940. Since that time the policy of the State Department has been to operate through local health departments wherever possible and to encourage the development of strong local health departments. The soundness of this policy should be clear. Health protection is just as individual as is education. Consequently adequate local health departments are as important to public health as are local schools to education.

Like any other organized effort, the character, magnitude and effectiveness of the State's public health program is determined in large measure by the person at the head of the Department of Public Health, the Director. It is he who determines the policies that prevail throughout the organization; it is he who maps out the over-all program of activities; it is he who must obtain the financial resources on which to operate and he is responsible for the economic and profitable expenditure of funds.

The Director is a member of the Governor's Cabinet and as such is answerable officially only to the Governor on administrative matters. The Director, therefore, shapes the general policies of the Department according to the pattern laid down by the Governor for his administration generally. All important matters of policy as well as proposed new programs of large significance are cleared by the Director with the Governor before final adoption. In developing policies the Director has the advice and counsel of a board of Public Health Advisors, appointed by the Governor and consisting of five members. He seeks also the advice and counsel of the Illinois State Medical Society and of the division chiefs of the Department. In this way the Director adopts policies that inspire the cooperation and support of the medical profession as well as of the public and which weld together into a harmonious team the operating units of the Department and integrate the Department into the general Administration of the State Government.

As to relations with the medical profession, a standing order of the Department, dated August 11, 1942, reads as follows:

"For the guidance of personnel of the State Department of Public Health in developing and executing programs at the State and local levels it is hereby ordered that the following rules be observed:

"1. That all public health programs involving medical services be planned in accordance with principles agreed to by the Illinois State Medical Society;

"2. That such programs be undertaken locally only after approval by the county medical society concerned has been obtained.

"3. That local programs be initiated only through local health officers in areas served by full-time health departments."

Medical Economics

The Medical Economics Committee — Chauncey C. Maher, Chmn., 6 North Michigan Avenue, Chicago, Edwin S. Hamilton, V. Thomas Austin, Emmet B. Bay, Jay McDonald Milligan, Jacob M. Mora, George Halperin, Marie Wessels, Thomas C. Browning, Roland R. Cross, Milton E. Bitter, Edwin F. Hirsch, Ford Hick, Lt. Col. MC, William J. Bryan, John R. Vonachen.

THE SELECTION OF MEDICAL STUDENTS

The careful selection of medical students has been a factor, often overlooked, in the general improvement of medical education in this country during the past forty years. Until this year the number of applicants to medical schools has exceeded so greatly the number of places available in the schools that careful selection was possible and was practiced in nearly all of the schools. For reasons which will become apparent neither the number nor the quality of the applicants are presently as satisfactory as they have been, nor will this condition improve for some years. Since the quality of the medical school product, i.e., the doctor, is largely dependent upon the quality of the raw material, i.e., the pre-medical student, the above facts are disheartening to the profession and should be disturbing to those who have in any way contributed to their development. Some of the decline in quality and quantity is inevitable during a war and can be blamed on no one. The kind of man whom we would most like to see in medicine is likely to be the same unselfish, active man who would volunteer promptly for the defense of his country, or would prefer to be in combat duty rather than in a medical school during war-time.

Until this year the Army supported 53% and the Navy 25% of each class in the medical schools. Beginning this year the Army has cut its quota to 28% and will permit only one class to enter any school in a calendar year although most medical schools under the accelerated program will have two entering classes every other calendar year. Thus, for one of these classes there will theoretically be service support for 53% of the class and for the other, only the 25% covered by the Navy. This leaves 47% and 75%, respectively, of the places in these classes to be filled by 4 F's or women, because under present selective directives there can be no deferment of healthy men for the medical schools. The number of non-service places to be filled will probably be much larger because the services have greatly curtailed their pre-medical programs. There are thus only 700 students in the Navy pre-medical program, and since there are approximately 5,000 students in each entering class throughout the country, it is obviously impossible for the Navy to supply the 25% it is willing to supply.

The medical schools are finding it impossible to fill their classes with well-qualified women and 4 F's. At a time when the Navy is seriously understaffed, medically speaking, and there is considerable social pressure to extend medical services within the civilian population, the medical schools are being forced to curtail their output. This does not make sense.

It is not being done by any of our allies or, so far as we can learn, by Germany. In Russia the problem is being met by a very large increase in the percentage of women admitted to medical schools, reaching 85% in some. It is doubtful if this solution could be obtained in this country or would be desirable if it could. There certainly are not that many women interested in medicine and qualified to study it now. Past experience would indicate that if they could be encouraged to do so, it would represent a somewhat wasteful procedure because the average professional life of the woman graduate in medicine is considerably shorter than that of her male counterpart. Nor have we assurance that such large numbers of women doctors would be ac-

cepted by the public.

Among the 4 F's there are some whose handicap in no way jeopardizes their performance in school or thereafter, but there are others who should not attempt the study of medicine. There are not enough of the former interested in the study of medicine to fill our classes.

A related problem which is just beginning to influence the selection of medical students concerns the admission of discharged veterans. Those discharged for neurophyschiatric reasons present the most serious difficulty to conscientious admission committees. These committees desire to aid the veteran but to protect him from further trouble and to protect the public from unstable physicians. This requires an omniscience few members of such committees would lay claim to. It is almost certain some serious mistakes will be made.

We do not know the number of veterans who will apply to the medical schools for admission. Indications are that there will be an insufficient number to fill the classes for the next two years at least. Surprisingly few of all those who will eventually be entitled, under the G. I. bill of rights, to a part or all of a medical education will be interested in or qualified to secure this. Of 100,000 men discharged from the services in the middle-west only 4,000 have thus far indicated any desire to continue their education, and only 16 of these have decided to enter pre-medical or medical schools.

When hostilities cease two factors may prevent the medical schools from obtaining full classes very quickly. One is definite and results from the fact that there will be no back-log pre-medical students who will have completed their pre-medical education since they will have been taken by the Army at age 18. The second, for the moment unsettled, is the result of the strong pressure for universal military training, which, if enacted, will result in an additional year's delay in the recovery of the enrollment in the schools. What effect, if any, this will have on the number and quality of men desiring to study medicine is unpredictable, but it might well be disadvantageous. When this serious reduction in the number of medical students, apparently inevitable in the near future, is considered along with the serious reduction in the number of men at present being well trained in the specialties (ably described by Dr. Evarts Graham in a recent Saturday Evening Post article), the future prospects of medicine in this country would appear to be unnecessarily jeopardized. This is true for the immediate future and the effects will probably be felt for some forty years.

England recognized the disastrous effects of such a program toward the end of the last war, has been aware of them ever since, and has taken steps to make sure that it did not happen this time. This country should have profited by that example, but since it did not, the next best thing would be to make whatever changes are necessary in selective service procedure so that the schools will not be running half-filled or less from 1946 on. This would require the deferment of some five to ten thousand men at first, and of some twenty to thirty thousand, at most. This peak would not be reached for three years. Two considerations would seem to make this a reasonable request. The number is small compared to all those in the armed forces or those deferred for agriculture, and second, the status of the war in Europe would indicate that these men could be better used by preparing them to assist in the great tasks ahead of medicine in the next forty years rather than by placing them in training for combat duty.

Senate Bill No. 637 has been introduced by Senator Allen J. Ellender of Louisiana and is designed to accomplish the deferment of an adequate number of pre-medical and medical and pre-dental and dental students. It is a satisfactory measure and deserves the support of all doctors and dentists.

If the deferment of an adequate number of men to fill our classes is legalized, a mechanism for their selection must be developed. It will not be easy. The motivation and aptitude, including personality and scholastic ability, will have to be evaluated before the candidate reaches the age of 18. Admission committees have already faced this problem and although they find the procedure more difficult and the result less satisfactory than in peace time, they would generally agree that it can be done and would certainly be worth attempting rather than suffer the serious curtailment now threatened. Motivation will be the most difficult factor to be sure about. The schools are not anxious to foster draft-dodging nor to have the kind of students who would be draft-dodgers. Personal interviews

(*Continued bottom of page 280*)

Medicine's Role in the War Effort

V-E DAY MEANS BIGGER TASK FOR ARMY MEDICAL DEPARTMENT

The ending of hostilities in Europe means that the doctors, nurses, technicians and other personnel who comprise the Army Medical Department will now begin an even bigger job than they have been doing which means there is no immediate prospect for the general release of personnel, Major General Norman T. Kirk, The Surgeon General, declared on V-E Day.

The Medical Department, he pointed out, not only must continue to care for the sick and wounded but must make immediate preparations for the redeployment of troops to the Pacific or this country.

One of the biggest tasks will be to give physical examinations to some 3,500,000 soldiers before they leave Europe. In addition, a goal of 90 days has been set in which to evacuate the sick and wounded from the European Theater to this country. Then there will be the final matter of redeploying the Medical Department personnel and equipment.

Soldiers whose condition necessitates a medical discharge will be given further treatment and necessary examinations in the United States. All soldiers, prior to discharge from the service, will be screened for tuberculosis, syphilis and other diseases, and for possible strains and other physical defects. Thus hospitals here will probably be operating at capacity with a critical need for medical personnel for many months to come.

"Practically all officers and men in the Medical Department came in for the emergency," said the Surgeon General, "and so far as we are concerned the emergency is far from being over."

☆ ☆

WOMEN DOCTORS ASSIGNED TO IMPORTANT TASKS

Eleven commissioned women doctors are serving with the U. S. Army Medical Service in the European theater of operations in capacities that range from general hospital ward surgeon to assistant medical military attaché in the American Embassy, London.

Three of these women doctors arrived in England late in 1941 at the request of the British Ministry of Health because of the critical shortage of surgeons and physicians after Dunkirk. Major Marion C. Loizeaux, Wellesley, Mass., was the first woman doctor to be commissioned in the European theater. Formerly an assistant physician at Wellesley College, she is serving on the staff of Major Gen. Paul R. Hawley, theater surgeon, as a special consultant in all matters pertaining to the medical care of the Wacs.

The two other doctors who were volunteers and are in the European theater are Capt. Eleanor Peck, Poughkeepsie, N. Y., who is assigned to the Shaef Dispensary, and Capt. Josephine Stephens of Monongahela, Pa., who is assigned to a general dispensary in Paris. A fourth, Capt. Mila Pierce, Chicago, who was a general hospital ward officer, was returned to the United States recently after she had fallen and broken her hip.

These four physicians—among twelve women doctors selected from five thousand applicants by the British Ministry of Health—were in England to greet the American Army when it arrived overseas. The four were first accepted by the U. S. Army medical service as contract surgeons and were later commissioned. Major Loizeaux was made a captain in September 1943, and the others were commissioned shortly thereafter.

Another of the twelve women doctors who served with the British as a volunteer is Major Sally Bowditch, Boston. She is assistant medical attaché to the American Embassy in London—the first woman attaché in the embassy's history. She returned to the United States at the request of Johns Hopkins University and was commissioned there in November 1943.

Included on the medical staff of a newly arrived general hospital are four women doctors: Capt. Jessie D. Read, Westfield, N. J.; Capt. Clara Raven, Youngstown, Ohio; Russian born and educated Capt. Bronislava Z. Reznick, Chicago, and 1st Lieut. Elvira C. Seno, Burlington, Wis.

Capt. Martha Howe, New York, is a recent arrival in England from the Mediterranean theater and is now a surgical ward officer in a general hospital. First Lieutenant Jean Dunham, North West Washington, D.C., anesthetist with a general hospital in England, was recently promoted to the rank of captain.

Capt. Katherine E. Jackson, Fort Wayne, Ind., is an anesthetist with a general hospital. She spent five weeks doing forward area work with field and evacuation hospitals before her own unit began actual operation. A member of the twelve original women doctors who went to England as volunteers, Major Barbara Stimson, Royal Army Medical Corps, is serving with a British hospital in Italy.

There are approximately seventy-five women doctors in the U. S. Army Medical Department in all theaters.

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GENERAL LULL DISCUSSES PSYCHONEUROTICS

Speaking on the "Doctors Look Ahead" radio program recently, Major General George F. Lull, USA, Deputy Surgeon General, stated that out of every hundred soldiers suffering from combat-engendered emotional disturbances, 40 to 50 are fit for return to combat after two days under the care of their divisional psychiatrist. An additional 10 to 15 men return to combat after two weeks of treatment in forward hospitals. About 30 more of the hundred improve sufficiently to remain in the theater in some non-combat job, while others can continue to do some type of Army work in this country.

The remainder who are discharged from the Army suffering from some type of psychoneurosis are not insane, General Lull stated emphatically. "Treat them with naturalness, understanding and patience," he advised. "Help them get established in their home, among their friends and in a good job — and the chances are 10 to 1 that their combat nervous symptoms will fade entirely."

☆ ☆

RATE OF RECOVERY FROM CHEST WOUNDS

In a recent release from the War Department, Major Gen. Norman T. Kirk, Surgeon General of the Army, reported that the rate of recovery from chest wounds is triple that of the first world war. The death rate of wounded men who lived long enough to reach surgery in the first world war was 24 per cent. Now it is 8, and this low rate has been achieved in spite of the fact that chest wounds are more serious in this war because of the increase in bomb fragments. The teams of young surgeons on the battle lines believe that if the wounded man can be got alive to an evacuation hospital, the surgical station closest to the front lines, the chances are that he will live.

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HARMON GENERAL HOSPITAL IS TROPICAL DISEASE CENTER

Harmon General Hospital, Longview, Texas, was recently designated for the treatment of tropical diseases. The only other army tropical disease center is Moore General Hospital, Swannanoa, N. C. Lieut. Col. Francis R. Dieuaide, chief of the Tropical Disease Branch, Medical Consultants Division, Office of the Surgeon General, stated that the medical staff of Harmon General Hospital has for some time been engaged in a study of relapsing malaria which has resulted in a permanent contribution to the knowledge of the disease. This study is now being extended to other tropical diseases which are rare in this country, such as filariasis, schistosomiasis and dysentery. Col. Gouveneur V. Emerson is commanding officer of Harmon General Hospital, Lieut. Col. Worth B. Daniels is chief of the medical service and Lieut. Col. Stuart W. Lippincott is chief of the laboratory division.

☆ ☆

HOSPITAL TRAIN UNIT RECEIVES MERITORIOUS SERVICE PLAQUE

While evacuating wounded from the Seventh Army front, members of the veteran 42d Hospital Train were notified that they were awarded the Meritorious Service Unit Plaque for "outstanding devotion to duty." The train is commanded by Major Samuel S. Gordon, Louisville, Ky., and the chief of medical service is Capt. Harold F. Goulston, New Bedford, Mass. The citation reveals that the 42d was the first hospital train to operate in southern France after the August 15 landing on the Riviera and was in continuous operation through the campaign which routed the Germans from southern and central France and on into Germany. In this period they carried 14,727 patients in forty-four round trips over a distance of 25,000 miles, as well as carrying 1,370 medical personnel and many tons of medical supplies to the Seventh Army.

Prior to the invasion of southern France the 42d operated in Italy, where it was cited by Major Gen. Arthur R. Wilson, then commanding general of the Peninsular Base Section, for evacuating wounded members of the American Fifth and British Eighth armies to rear areas. In North Africa the train took a direct part in the Sicilian campaign, receiving wounded by air evacuation at Constantine in Algeria. For services there the nurses of the unit were cited by the commanding general of the Mediterranean Base Section.

The 42d Hospital Train was activated on June 1942. Three fourths of present personnel have been with the unit since its activation at Camp Rucker, Alabama. After further training at Fort McPherson near Atlanta, Ga., the staff proceeded to North Africa, arriving there in April 1942.

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USE OF DDT FOR MOSQUITO CONTROL IN THE UNITED STATES

A Joint Statement of Policy by the U. S. Army and the U. S. Public Health Service

Successful use of the new insecticide DDT to combat insect borne disease among our troops overseas has brought sudden renown and notoriety to this potent war developed insect killer. Dramatic reports of its large scale use to control epidemics, and especially the spraying of DDT from aircraft, have fired public imagination and fostered the hasty conclusion that DDT is a complete solution to all of our insect borne disease problems. However, it must be remembered that DDT distributed over the country-

side not only destroys malaria carrying mosquitoes but also may kill other insects, many of which are beneficial. Much still must be learned about the effect of DDT on the balance of nature important to agriculture and wild life before general outdoor application of DDT can be safely employed in this country. It may be necessary to ignore these considerations in war areas where the health of our fighting men is at stake, but in the United States such considerations cannot be neglected.

Extensive investigations are now being carried out by authorized agencies to determine the usefulness and possible hazards in the large scale dissemination of DDT. Until more information has been obtained from such investigations and until it has been evaluated by all interested parties, plans to employ DDT indiscriminately for outdoor area control of insect disease vectors in this country are not to be encouraged.

Since the beginning of mobilization the Army has carried on an extensive antimosquito campaign inside military reservations, and the U. S. Public Health Service has maintained a cooperative program for the control of malaria in adjacent extramilitary areas. This joint effort has successfully prevented malaria from becoming a problem to troops in this country. To meet the hazard of possible spread of malaria by troops returning from overseas, the Army's program in military areas has been intensified and the program of the Public Health Service has been extended to include certain additional selected areas in the South, where risk of transmission is greatest. Representatives of the Army and the Public Health Service have given full consideration to ways in which this mosquito control program might be strengthened by employing DDT. The following joint policy has been agreed on pending acquisition of further knowledge concerning the large scale outdoor application of DDT:

1. DDT will be used for residual spray application to houses and other buildings for the purpose of killing adult mosquitoes before they have opportunity to transmit malaria. The long lasting killing effect off DDF as a residual spray provides a highly effective means to prevent the spread of the malarial parasite. This method of use is safe and economical and, moreover, is welcomed by the householder because it provides freedom from insect annoyance.

2. The use of DDT as a mosquito larvicide will be limited to experimental investigations and to situations in which DDT has definite advantage over other larvicides in saving materials and manpower, and presents no hazard to fish and other wild life.

3. Distribution of DDT from aircraft for large scale area control of mosquitoes in military and adjacent areas in the United States will be limited to projects conducted with due regard to the possible effects of DDT on beneficial insects and all forms of plant and animal life and in accordance with safeguards established by the Surgeons General of the Army and the U. S. Public Health Service.

CHEMICAL WARFARE SERVICE DESIGNS GAS MASKS

The War Department recently announced that the Chemical Warfare Service recently designed three gas mask sizes which will fit all soldiers in the Army. Ten different head types were established, five normal and five unusual. The selection on types was made by correlating measurements representing breadth, depth and length of the face. The normal type comprises an average head and two large and two smaller sizes. The unusual types are those in which two of the principal measurements correspond with normal heads but whose third major measurement does not. It was found that 65 per cent of the soldiers measured normal medium, 19 per cent medium small and 11 per cent medium large. Four per cent of the heads were small, 3 per cent large. In the unusual size, 7 per cent had "short fat faces," the largest single category in that group. The study was carried on at Camp Sibert, Alabama, where 3,075 men representing every state in the Union, Alaska and the Philippines were tested for facial and cranium measurements. The birthplace of the soldier and the nationality of his father were taken. Facial characteristics such as fleshiness of the face, prominence of the cheek bones, pointedness of the face, prominence of the forehead, structure and shape of the nose, size of lips and whether ear lobes were attached to the face were also noted.

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INTRASTERNAL PLASMA SAVES CREWMAN'S LIFE

The life of a B 29 crew man was recently saved when comrades gave him blood plasma through a new type of needle. The successful injection showed that the new intrasternal method of administering plasma can be used safely by airmen. The intrasternal method is being taught to the entire crew even before they start on bombing missions, so that this method can be resorted to when the patient is suffering from shock and his veins have collapsed.

☆ ☆

SERVICE COMMAND CONSULTANTS IN MEDICINE TRANSFERRED

Col. Vern R. Mason, former consultant in medicine of the Ninth Service Command, is now on duty overseas as medical consultant of the Pacific Ocean Area.

Col. Irving S. Wright, former consultant in medicine, Sixth Service Command, is now consultant in medicine, Ninth Service Command; Col. Alexander Marble, former chief of medical service, Harmon General Hospital, is now medical consultant, Sixth Service Command, and Lieut. Col. Worth B. Daniels is now chief of medical service at Harmon General Hospital, Longview, Texas.

SELECTION OF MEDICAL STUDENTS

(Continued)

with applicants can usually settle this point.

We have been short-sighted. We should not continue to be so.

Original Articles

THE CORONARY OUTLOOK

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This is not to be a statistical survey of the mortality, life expectancy and potential longevity of individuals based upon either life insurance actuarial figures or the experiences of cardiologists. Rather it is the frank answer to the oft repeated questions from coronary patients — 1. "Just what can I safely do in the way of physical and mental exertion?" 2. "Within rough limits, what is my life expectancy?" The very nature of these questions brings up still another one, a bit more objective: are we doing enough to dispel the pessimism which surrounds most individuals with a coronary background? A very appreciable percentage of this group of patients are not alone introspective and hypochondriachal, but are fearful and uncertain to the point of being psychotic.

Before attempting to answer any of these questions, it is necessary to define the terms "Coronary Outlook" and the "Coronary Patient." I have already suggested the broad meaning of the former — the patient with coronary disease wants to know what his (or her) outlook is as to a safe "energy potential;" and to what extent his life expectancy is curtailed.

Let us approach the subject in an orderly fashion and appraise and define the coronary patient. Now, as I see it, there are four distinctly different types:

I. The arterio-sclerotic (atheromatous) which is the most common and accounts for the vast bulk of all coronary disease encountered clinically.

II. The embolic — which occurs particularly in rheumatic endocarditis and quite logically so, since the coronary mouths lie in the aortic ring, in close proximity to the aortic valves.

III. The luetic: the mechanism here consists of a pouching of the intima of the aorta into the openings of the coronary arteries.

IV. Hypertensive: in this type, the forceful closure of the aortic valves leads to constant and renewed pressure on the coronary arteries at their site of origin in the aortic ring.

It becomes evident at the outset of this discussion, that the outlook of the coronary patient depends upon many variables, an important one of which is the type or kind of coronary background in a given individual. Since the arteriosclerotic (atheromatous) accounts for the vast bulk of coronary disease, I should like to discuss it first, and in detail.

Coronary artery disease is part of the process of senility. I grant it occurs in early life, but basically and pathologically, coronary disease is part of the pottage of senility. Excluding those instances due to hypertension, syphilis, and those of embolic origin, the bulk of coronary disease is due to arteriosclerosis, more specifically atherosclerosis and therefore is a senile form of heart disease. Furthermore, since coronary disease is due to arteriosclerosis, its pathology is progressive and so it seems to me we see it clinically too.

I should like to present coronary disease to you as a clinically progressive situation and discuss it under three heads:

1. *Angina of effort.* Clinically this, it seems

to me, is the earliest expression of coronary disease, and the pain or distress or dyspnea or strangulation is the result of a temporary coronary insufficiency. There is some evidence that the initial pain of angina of effort speaks for a previous mild heart-muscle infarction. The clinical picture of angina of effort is so well known it hardly merits description. The sudden onset of precordial distress, usually following physical effort or mental excitation, with classical reference into the jaws or down the arms, unassociated with shock and quickly relieved by coronary dilators or postural rest, is not readily confused. It usually leaves the individual none the worse for his episode. The immediate management calls for no comment. It is of brief duration and corrects itself. However, the prophylactic management is another matter. If these attacks recur at frequent intervals, they predicate, in my opinion, a progressive pathology and an impending acute occlusion with infarction and call for a period of complete rest and careful observation.

The second stage in the clinical and pathological progress of coronary disease, is Acute occlusion with myocardial infarction and necrosis. The clinical picture is something like this:

1. History. As a rule there is the story of previous milder symptoms of coronary insufficiency, possibly one or more seizures of angina of effort.

2. The mode of onset is usually sudden, either while at rest or following physical effort.

3. The physical signs are usually characteristic. A sudden onset of severe pain or dyspnea or strangulation, and almost always associated with shock and prostration. The heart itself is considerably disturbed as to rate, usually rapid, rhythm usually irregular, volume very poor. There is a drop in blood pressure, elevation of temperature (because of the inflammatory process in the myocardium), and the individual is desperately ill and senses it. The electrocardiogram in most instances shows a coronary pattern with distorted and inverted T waves within twenty-four to forty-eight hours.

Status Angiosus. If coronary disease has as its basic pathology atherosclerosis (excluding those instances due to hypertension, syphilis and those of embolic origin), then several other premises follow quite logically, to wit: it belongs primarily to the later decades of life and it is progressive, culminating in some instances and in some individuals with a very marked limitation of physical and mental potentialities in a state of status angiosus. Here we are, in my opinion, dealing with a chronic progressive end result.

Now it must be quite apparent that the "outlook" of a patient with the arterio-sclerotic type of coronary disease depends to a very considerable extent on the stage of his coronary involvement, as determined by the degree of his underlying pathology. However, again ignoring statistical figures, I shall make the following broad statements (based upon personal experience in both the clinic and private practice).

I — The individual with so-called angina of effort who probably has had a closure of a coronary twig, with a minor, circumscribed myocardial infarction — of relatively small size, has a good "outlook" both as regards potential longevity and energy quotient. His physical and mental activities call for little if any curtailment. Certain types of occupation which demand unusually strenuous physical effort are naturally contraindicated, and are incompatible with well being and safety. And there are some exceptions, a minor percentage, however, which will demand restriction of even the average exertion essential to livelihood. However, the vast army of *early* or mild coronaries can carry on the average occupation with safety and euphoria. The same statement covers the matter of physical exercise. An individual who has played golf for decades, may continue to do so (on a flat course and under ordinary circumstances).

Walking (leisurely) and swimming, rowing, bowling, in a word — the ordinary types of physical exercise to which a patient has become familiar — are neither contraband nor hazardous. The more strenuous forms of exercise such as running, tennis, etc., are naturally not permissible.

The age of a given individual is another determining factor because the axiom "A man is not as young as he feels, but is as old as his birthdays," is sound.

What shall be the criterion to determine whether a given individual with early coronary disease is living within his safety zone? The answer is simple: — the presence or absence of

symptoms, and the earliest and most significant are chest pain and dyspnoea. The occurrence of either or both after effort condemn the effort. How long can this first stage coronary individual live? Five years? Ten? In my opinion, indefinitely.

So much for the moment concerning the early or first stage coronary individual, and we come to the patient who has had a clinically frank acute coronary occlusion, with myocardial infarction of considerable extent. What about his "outlook" and energy quotient?

In the first place, his *immediate* outlook is quite good, immeasurably better than we felt it was a few short decades ago. Gone is the immediate mortality rate of 25% or more of a very short time ago. Statistics depend on so many variables, and are therefore unsatisfactory, but surely the immediate outlook of the individual with an acute occlusion with infarction, if treated early, and adequately, is very promising.

After recovery from the acute insult, what is the long range "outlook" and the energy potential of such an individual who has suffered an acute infarction of appreciable size and extent?

The answer to this question is again dependent upon many variables, such as for example, (a) the age of the individual at time of onset, (b) the degree and size and location of his infarction, (c) the condition of his myocardium and his coronary arteries *prior* to his seizure, (d) finally, the blood pressure level, since plainly, a severe hypertensive has a more formidable problem.

Generalizing, however, I feel strongly that as a rule, we consciously or otherwise have an entirely too pessimistic outlook with the average patient. He feels not only that his years are pretty definitely numbered, but what is more regrettable, that he is from here on "fenced in" so far as his potential physical and mental activities are concerned.

In my opinion and in my experience, these premises are all unfair and erroneous. Countless thousands of individuals are carrying on energetically and efficiently both physically and mentally after an acute coronary occlusion with infarction — and they do so without undue fatigue, without coronary or heart muscle symptoms, and without any apparent hazard. If and when any of these symptoms appear, they have transgressed their 'safety zone' and must slow up.

In the older age group, individuals who have sustained an acute occlusion, not all, but an appreciable percentage, if they live long enough, because of their progressive arteriosclerotic pathology, develop a chronic coronary insufficiency (status angiosus).

Clinically, on inconsequential physical or mental effort they develop coronary or heart muscle distress, either chest pain or dyspnoea, and the electrocardiogram certifies chronic coronary and heart muscle changes. Such individuals are more narrowly circumscribed in their activities, but even they with caution and ample rest can and do carry on amazingly well and live far and beyond a life's expectancy accredited them a few decades ago.

In a word, the "Coronary Outlook" for individuals with an arteriosclerotic background, particularly in the senile group, have a more optimistic future in every sence than most of us seem to appreciate.

II — The embolic type of coronary disease! Here we are dealing, as a rule, with a youthful individual who owes his acute coronary insult to an embolus on the background most frequently, of a pre-existing rheumatic endocarditis. His "outlook" both immediate and mediate depends on several factors, but most important upon the extent or degree of his valvular involvement, and the resultant heart muscle distortion.

Since the mortality rate of rheumatic endocarditis per se is high and life expectancy is distinctly curtailed, this added complication is just another unfavorable factor. These individuals, because of their basic pre-existing pathology, are in my opinion narrowly circumscribed physically and their outlook in every sense not promising.

III — Luetic Coronary Insufficiency. This is a very special type of coronary disease, with a mechanical and if you will, an *extra* coronary cause for the clinical picture. The *basic* pathology of cardiac syphilis resolves itself around the aorta. Syphilitic heart disease is primarily an Aortitis. Syphilis involves the median layer and the intima of the aorta throughout its length and breadth from its origin within the heart to to its exit through the diaphragm (only rarely

does syphilis involve the abdominal aorta). The median layer, with its elastic tissue and muscle fibers bears the brunt of the attack, hence the frequency of aneurysm as an end result. However, the intima too is commonly involved, and the mechanism and explanation of the clinical picture of coronary insuffiency on a syphilitic background consists of a pouching of the intima of the aorta thereby reducing the coronary flow.

It is important to remember that coronary insufficiency aneurysm and even aortic insufficiency due to syphilis represent complications of syphilitic aortitis, and therefore speak for advanced pathology and not the primary cardiac invasion.

This fact materially influences the "outlook" for this type of coronary patient. His condition (unlike that of an individual with acute occlusion and infarction on an atheromatous or embolic background) is chronic. Accordingly the therapeutic measures, including a period of absolute rest, coronary dilator drugs, etc., are less if at all effective. Since this is so, we are limited in our management of this type of coronary disease. His "outlook" therefore is uncertain, variable, and unsatisfactory. Pain on effort is chronic, comes frequently, is apt to be of long duration and incompletely relieved by the usual measures. Since he usually develops no heart muscle infarction, dyspnoea is a less prominent subjective symptom than pain — until or unless he develops left ventricular insuffiency due to either his specific aortic insufficiency or a direct involvement of his myocardium.

However, while individuals with luetic coronary insufficiency due to blocking of their coronary mouths, are narrowed and circumscribed in their activities, they are able to carry on for an indefinite period of time.

IV — Hypertensive coronary insuffiency. Here the mechanism for pain and dyspnoea on effort consists of a forceful closure of the aortic cusps and a resultant pressure on the coronary arteries at their site of origin in the aortic ring. Quite plainly the "outlook" for such patients is variable and depends upon many factors such as the degree or extent of hypertension, the chronicity, and the response to treatment.

However, this type of coronary disease with periods of rest and curtailment of activities is compatible with not only years of life but often an amazingly generous energy potential.

In conclusion (and again with apologies for both the utter lack of statistical data and the substitution of generalities), I feel the coronary "outlook" for coronary patients, particularly those on an atheromatous background is good — is vastly better than most of us are wont to concede. True such an individual should be taught to live within his energy potential, should avoid the symptoms of coronary insufficiency (pain and dyspnoea) — but definitely should be helped to be less introspective and coronary conscious.

TUBERCULOSIS, A NEW POST WAR PUBLIC HEALTH PROBLEM

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Medical science with the aid of intensified public health service programs has, to a great extent, eliminated such diseases as diphtheria, smallpox, typhoid fever, and at the present time is waging a continuous war against whooping cough. These diseases have been placed in the category of preventive medicine. In the field of diseases in which we have known the specific causes for a long while, but have no definite immunologic procedures in combating, tuberculosis ranks as the number one killer and crippler of humanity, not only in this country, but throughout the world in general. This paper deals with the public health and early case-finding aspects of tuberculosis rather than the treatment of the disease.

Although the cause of tuberculosis was discovered by Robert Koch in 1882 and intensive campaigns for the control of tuberculosis have been in progress throughout the world for many generations, tuberculosis is still one of the major causes of death. In the year 1941 in the United States 109,320 cases of tuberculosis were reported with 58,159 deaths. Continuous tuberculosis campaigns have shown a steady decline in the incidence of fatalities from the disease, except in times of war when the incidence of the disease increases. (Table 1). During World War I the incidence of tuberculosis reported in-

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TABLE 1
DEATH RATE FOR TUBERCULOSIS, BY RACE:
REGISTRATION STATES, 1900-1940, EVERY FIFTH YEAR

Registration States	1940	1935	1930	1925	1920	1915	1910	1905	1900
All races:									
All forms	45.9	55.1	71.1	84.8	113.1	140.1	153.8	179.9	194.4
Of resp. system	42.2	49.9	63.0	74.1	99.8	122.6	133.3	157.1	174.5
Other forms	3.7	5.2	8.1	10.7	13.4	17.5	20.6	22.9	19.9
White:									
All forms	36.6	44.9	57.7	71.6	99.5	128.5	145.9	....	....
Of. resp. system	33.7	40.8	51.1	62.2	87.1	112.0	126.2	....	....
Other Forms	2.8	4.1	6.6	9.3	12.4	16.5	19.7	....	....
All Other Races:									
All forms	128.0	145.1	192.0	221.3	262.4	401.1	445.5	....	....
Of resp. system	116.6	130.5	170.3	196.7	238.0	360.7	393.7	....	....
Other forms	11.4	14.7	21.7	24.6	24.4	40.4	51.8	....	....

Source: Vital Statistics Rates in the United States 1900-1940
United States Department of Commerce, Bureau of the Census

creased almost one-third in most of the countries attacked by war. We likewise remember that a rise in the incidence of the disease occurred in this country following the last war. The care of tubercular patients has been one of the obligations of government to the veterans of the last war. Spillman[1], in a timely paper published in October, 1940, revealed its tremendous cost. He stated that "Tuberculosis during and after the World War has cost approximately 960 million to date in compensation, vocational training, insurance and hospitalization," and he further remarked that this cost "is a matter of public record, but it seems far from being a matter of common knowledge."

During the present war, because of the larger number of people involved and the larger geographic areas represented, in addition to the extended period of the war, tuberculosis has shown a marked increase. It will be impossible to obtain accurate statistical reports from these countries until several months following the close of the war. This national increase in tuberculosis will be more marked in the male sex except in the age group 15-24 years where the incidence is highest in the female sex. (Figure 2). The national figures regarding age and sex also correspond with the Illinois state figures by age, sex and race for the year 1940. (Table 3). It is evident from statistics avail-

TABLE 3
DEATH RATES FOR TUBERCULOSIS, BY AGE, RACE, AND SEX:
ILLINOIS 1940

	All ages	Under 1 year	1-4 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over
Tuberculosis (all forms):												
All races — both sexes	46.8	24.1	12.2	4.2	35.3	53.5	63.4	67.5	71.1	67.7	60.6	54.1
Male	47.3	17.1	13.7	4.2	27.5	56.2	82.1	99.7	107.7	94.7	74.7	49.5
Female	34.9	31.2	10.6	4.2	42.9	50.9	44.7	33.3	32.0	41.7	48.3	57.5
White — Both sexes	37.0	17.3	7.6	2.3	22.8	41.0	47.6	58.7	64.6	65.5	58.4	51.9
Male	46.5	8.0	7.0	2.5	16.9	41.8	61.1	87.7	97.5	91.6	70.1	51.4
Female	27.5	26.8	8.3	2.0	28.6	40.2	34.0	27.9	29.4	40.2	48.1	52.3
Other races—Both sexes	220.3	148.6	96.4	39.5	301.8	267.6	294.0	243.6	240.9	129.9	160.7	110.5
Male	270.9	182.6	141.4	36.7	271.7	325.0	394.2	334.3	368.2	181.9	300.3	0
Female	172.8	113.4	52.2	42.2	327.3	220.7	197.5	143.1	99.9	82.6	56.2	189.8

Source: Vital Statistics Rates in the United States 1900-1940
United States Department of Commerce, Bureau of the Census

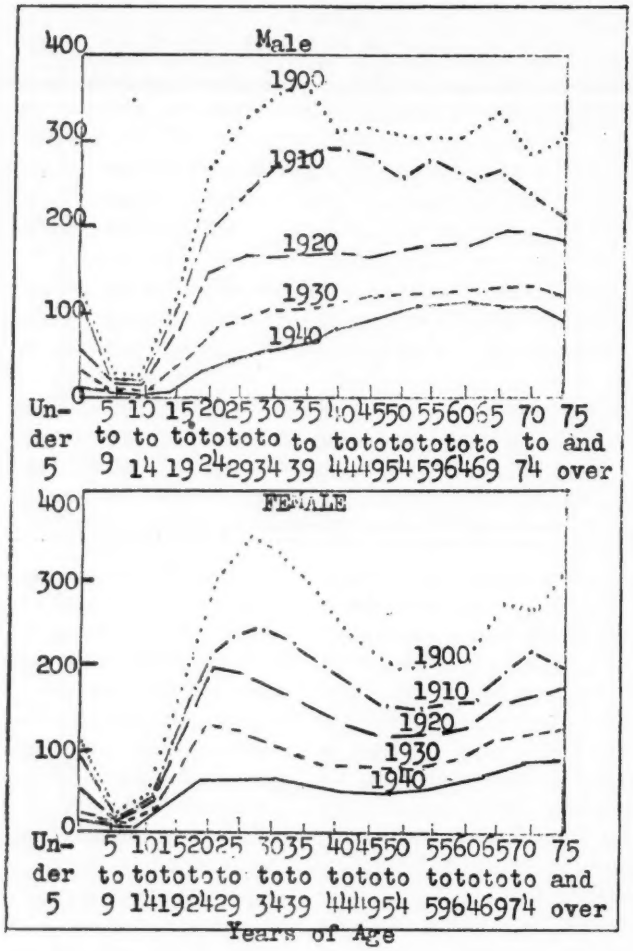

Figure 2. Deaths from tuberculosis per 100,000 population, by five-year age group and by sex, United States Registration Area, 1900, 1910, 1920, 1930 and 1940.

able in this country that tuberculosis is again on the increase.

In this paper New York State is used on a comparative basis with Illinois because of its type of population. Both states have one large city and many small industrial towns within scattered agricultural areas. New York, unlike Illinois, is one of the most progressive states in tuberculosis control work. The enclosed table (Table 4) shows the resident deaths and death rates per 100,000 population from all forms of tuberculosis in New York State, New York City and the rest of the state 1926-1943. It is evident that the steady decline in the death rate for New York State, exclusive of New York City, was interrupted by increases during the years 1942 and 1943. The rate for 1942 was 4.1% higher than for 1941, and provisional figures for 1943 show an increase of 3.6% over the 1942 rate. The number of deaths increased by 93 in 1942 and 85 in 1943. In New York City the rate decreased in 1942 but showed an increase in 1943.

Experience similar to that of New York state

TABLE 4

Resident Deaths and Death Rates per 100,000 Population, from Tuberculosis (all Forms) in New York State, New York City and Rest of State, 1926-1943

	New York State		New York City		Rest of State	
Year	Deaths	Rate	Deaths	Rate	Deaths	Rate
1926	9889	83.6	6075	94.2	3814	71.0
1927	9226	76.7	5654	85.9	3572	65.6
1928	9371	76.6	5899	88.0	3472	62.8
1929	9092	73.1	5692	83.3	3400	60.7
1930	8761	69.5	5588	80.5	3173	56.0
1931	8384	66.0	5421	77.5	2963	52.0
1932	7826	61.2	5018	71.2	2808	48.9
1933	7715	59.9	5061	71.3	2654	45.9
1934	7413	57.2	4829	67.5	2584	44.4
1935	7265	55.6	4827	67.0	2438	41.7
1936	7477	56.9	5062	69.7	2415	41.0
1937	7171	54.2	4786	65.5	2385	40.3
1938	6403	48.1	4255	57.8	2148	36.0
1939	6353	47.4	4236	57.1	2117	35.3
1940	6095	45.1	4059	54.4	2036	33.7
1941	6111	45.0	4175	55.5	1936	31.9
1942	5976	43.7	3947	52.1	2029	33.2
1943	6282*	45.6*	4168*	54.7*	2114*	34.4*

*Provisional figures

has occurred in Illinois (Table 5) where the provisional death rate for 1943 showed an increase to 42.7 from a rate of 41.1 for 1942. The total number of reported cases in the first sixteen weeks of 1944 in Illinois was 11% higher than during the same period in 1943.

The State of Illinois, from all indications, should have a major tuberculosis problem because throughout the years Illinois has lagged behind other states in controlling tuberculosis. Table 6 shows the deaths per 100,000 population from tuberculosis in Illinois and the contiguous states:

TABLE 6

DEATHS PER 100,000 POPULATION FROM TUBERCULOSIS
ILLINOIS AND CONTIGUOUS STATES

	1930	1942	Decline
Illinois	63	41.7	34%
Indiana	68.1	36.7	46%
Kentucky	97.3	66.0	32%
Missouri	63.1	41.4	34%
Iowa	33.3	17.6	47%
Wisconsin	52.1	24.3	53%
Michigan	60.6	34.2	43%

TABLE 5

TUBERCULOSIS — CASES, DEATHS AND RATES — 1925 - 1942
STATE OF ILLINOIS
Rates (per 100,000 Pop.)

Year	Cases*	Deaths**	Cases	Deaths	Fatality
1925	13,999	5,526	197.2	77.8	39.4
1926	17,002	5,499	235.7	76.2	32.3
1927	14,622	5,482	168.1	73.5	43.7
1928	12,500	5,466	168.1	73.5	43.7
1929	12,255	5,246	162.4	69.5	42.8
1930	11,179	4,789	146.4	62.7	42.8
1931	10,423	4,799	136.0	62.6	46.0
1932	10,466	4,273	136.1	55.6	40.8
1933	3,708	2,138	85.6	49.3	57.7
1934	9,734	4,124	125.7	53.3	42.4
1935	9,911	4,075	127.5	52.4	41.1
1936	8,506	4,050	109.1	51.9	47.6
1937	9,064	3,995	115.8	51.1	44.1
1938	8,222	3,684	104.7	46.9	44.9
1939	7,752	3,608	98.4	45.8	46.5
1940	8,574	3,654	108.6	43.3	42.6
1941	9,410	3,474	118.5	43.7	36.9
1942	9,415	3,249	119.1	41.1	36.0
1943***	9,003	3,239	118.6	42.7	36.0

STATE EXCLUSIVE OF CHICAGO

Year	Cases	Deaths	Cases	Deaths	Fatality
1925	6,288	3,037	155.8	75.2	48.3
1926	8,498	2,969	208.2	72.7	34.3
1927	6,824	2,915	165.3	70.6	42.5
1928	5,415	2,808	129.7	67.3	51.8
1929	5,715	2,692	135.4	63.8	47.1
1930	5,061	2,551	118.8	59.9	50.4
1931	4,204	2,502	98.1	58.4	59.5
1932	4,601	2,265	106.8	52.6	49.2
1933	3,708	2,138	85.6	49.3	57.7
1934	4,154	2,186	95.3	50.1	52.6
1935	4,077	2,121	93.0	48.4	52.0
1936	3,430	2,029	77.7	46.0	59.2
1937	3,914	1,958	88.3	44.2	50.0
1938	3,499	1,717	78.5	38.5	49.1
1939	3,257	1,689	72.7	37.7	51.9
1940	3,212	1,741	71.4	38.7	54.2
1941	3,657	1,666	81.3	37.0	45.6
1942	3,540	1,522	79.8	34.3	43.0
1943***	3,430	1,524	80.3	35.7	44.4

Source of data: Educational Health Circular No. 59 Illinois Department of Public Health.

* Cases allocated to Residence

** Deaths to place of occurrence

***1943, Provisional figures

Table 7 shows the deaths per 100,000 population from tuberculosis in Illinois and other populous states:

TABLE 7
DEATHS PER 100,000 POPULATION FROM TUBERCULOSIS
ILLINOIS AND OTHER POPULOUS STATES

	1930	1942	Decline
Illinois	63	41.7	34%
New York	71.6	46.8	35%
Pennsylvania	61.9	43.0	30%
Massachusetts	64.0	37.5	41%
Ohio	64.1	40.9	36%
New Jersey	67.9	44.0	35%
Rhode Island	69.2	37.7	46%
Connecticut	61.1	35.5	42%

Every state that borders on Illinois has made more substantial progress than Illinois in cutting down the death rate from tuberculosis since 1930 except Kentucky. The Illinois rate in 1942 was only 34% below the rate of 1930. The least decline in the death rate among neighboring states was 32% for Kentucky. The reductions in other contiguous states were 34% Missouri, 43% Michigan, 46% Indiana, 47% Iowa, and 53% for Wisconsin.

Among those bordering states only Kentucky had in 1942 a death rate from tuberculosis higher than Illinois, 66.0 against 41.7. On the other hand, Indiana, Kentucky, and Missouri had higher rates in 1930 than did Illinois. In spite of considerably lower rates than Illinois in 1930, Iowa, Michigan and Wisconsin have experienced a further decline in their rates than has Illinois. This suggests that the rate in Illinois has not yet dropped to the point of significant diminishing returns through control efforts. As to Illinois, it may be observed that the death rate for the 101 counties other than Cook declined from 47.3 in 1932 to 30.4 in 1943, a reduction of approximately 36 per cent. The Cook County rate declined from 63.6 to 52.3, a reduction of only about 18 per cent. This indicates that the situation is more serious in Cook County than generally in Illinois. Illinois, the third largest state in the Union, has had the least appreciable decline of any densely populated state except Pennsylvania. The decline in Pennsylvania was 30% — the lowest in this group of states. All others experienced a decline of 35% or more. All of these populous states listed are highly industrialized and most of them have a greater density of population than does Illinois; these factors usually favor the prevalence of tuberculosis.

While mortality from tuberculosis in Illinois has continued to decrease, the downward trend has slackened considerably as compared with the decade between 1920 and 1930. On the other hand, there has been a noticeably upward trend in reported cases of tuberculosis since 1939. In that year, 7,752 cases were reported in the state. By 1942 the number of case reports had again reached 9,415. In 1943 there was a decline in notifications to 9003 which might very well have been the result of a curtailment in case-finding programs, due to war conditions. For the first sixteen weeks of 1944 case reports were up 11% as compared with the corresponding period of 1943.

The statistical evidence shows clearly, therefore, that progress in the control of tuberculosis has been checked and is now virtually at a standstill.

The most important weakness in the control program in Illinois is a shortage of sanatorium facilities. According to the 1944 American Medical Association Hospital Directory there is a total of 4,249 public and private tuberculosis sanatorium beds in Illinois exclusive of Veterans Administration Facilities. Leaders in the field of tuberculosis control have set as a minimum figure two beds for every death occurring in the state. A moderate figure of 2½ beds-per-death and an optimum figure is 3 beds for every death. From the total deaths in Illinois on a 2 bed-per-death figure there ought to be, at least, 6,800 tuberculosis beds available for the care of tuberculosis patients within the state. These figures mean that we should have at least 2,500 more beds made available to us during the continued fight against tuberculosis in the state.

The public health problem in tuberculosis is to discover the case early enough during the course of the disease to treat it as soon as possible and return the individual to his occupation. To accomplish this, tuberculosis must be discovered during the minimal stage, where there is a chance for complete recovery. Table 8 shows the percentage of sanatorium patients living five years after discharge according to the stage of disease upon admission to the Rutland State Sanatorium, 1931, and also the group of 75 sanatoria in 15 states in 1938.

TABLE 8 — Percentage of sanatorium patients living five years after discharge, by stage of disease on admission, Rutland State Sanatorium, 1931, and group of 75 sanatoria, 15 states, 1938.

RUTLAND STATE SANATORIUM 1931		
	Stage of Disease on Admission Per cent	Living Five Years After Discharge Per cent
Minimal	15	83
Moderately advanced	33	59
Far advanced	52	21
COMBINED SANATORIA 1938		
	Stage of Disease on Admission Per cent	Living Five Years After Discharge Per cent
Minimal	14	75
Moderately advanced	38	60
Far advanced	48	33

It is a regrettable fact that 25 per cent of the cases admitted to sanatoria which accept patients regardless of their condition are found to be so far advanced that they are beyond help and die while under treatment. Unfortunately, it is a country-wide experience that of all cases admitted to sanatoria, only 10 to 15 per cent are in the minimal stage when the chance for complete recovery is best. This condition has continued for years without change and will not improve until we make Roentgen examinations of supposedly well persons a community procedure. When clinical symptoms of cough, sweating, loss of appetite, and weight appear, it is usually found that the disease has progressed beyond the minimal stage.

What type of x-ray surveys have become practicable in early tuberculosis case finding programs? We know that x-raying of the population using the 14 x 17 inch film is costly. The Selective Service System with its examination of over 11 million men for the armed services has given us the answer. Surgeon General Thomas Parran,[2] speaking on "The Expanding Field of Public Health and Preventive Medicine" before the Council on Medical Education in Chicago on February 14, 1944, stated:

"The expansion of the mass tuberculosis case finding program, using the small film x-ray technic, has important implications both for medical education and for medicine. Reversing previous experience, 60 per cent of the cases uncovered in x-ray surveys are in the minimal reinfection stage as compared with approximately 10 per cent of the cases which came to treatment without intensive x-ray case finding. Formerly 90 per cent of the tuberculosis patients were in need of hospitalization by the time a diagnosis was made. Improvement in methods of treatment now make it possible for the majority of patients in the early stages to be treated successfully without hospital care. Through hard necessity we have proved the value of new technics for the control of venereal diseases, tuberculosis, and malaria."

Two systems of mass x-rays have been developed; one using the 35 mm. film, and the other using a 4 x 5 inch film. Experience has shown that there is less chance for error with the use of the 4 x 5 film.

The New York State Health Department bulletin, Health News,[3] gives the following report on chest x-ray examinations at induction stage — "Although the primary purpose of this procedure has been to exclude from service persons with pulmonary tuberculosis, it has at the same time resulted in a remarkable demonstration of the tremendous value of mass x-raying in the discovery of tuberculosis in the civilian population.

"Upstate New York's share in this gigantic project has been the provision of a chest x-ray examination for about one-half million residents of that area during the past three years at the armed forces induction stations in the State, including the one in New York City.

"On the average, about twelve out of every 1,000 persons x-rayed have been either deferred or rejected for service because of x-ray evidence of tuberculosis. On this basis, about 6,000 upstate residents have been so disqualified in the period mentioned.

"However, because of rigid army standards for acceptance, not all of those disqualified have pulmonary tuberculosis of the reinfection or potentially serious type. Only about two-thirds have definite reinfection lesions; the remainder is made up of persons with suspected tuberculosis, with healed tuberculosis of the primary type, and others.

"Of those with definite reinfection lesions, only about one half are considered as having active tuberculosis at the time of the induction station examination. In other words, about a third of all those disqualified because of tuberculosis are classified as active cases on the basis of the initial x-ray. This, in turn, represents

about 0.4 per cent of the total number examined.

"It is to be expected that among the hundreds of tuberculosis cases diagnosed at induction stations, a certain number are already known as such as a result of previous diagnosis. Records of the State Department of Health indicate that slightly less than 20 per cent of the persons with definite reinfection lesions have previously been reported as cases of tuberculosis. Thus, the fact that more than 80 out of each 100 cases discovered have not been previously known to have the disease is further evidence of the value of mass x-raying in tuberculosis case-finding.

"Invariably, an important by-product of all mass chest x-ray projects is the discovery of nontuberculous chest conditions, such as pneumonia, pleurisy, heart disease, lung tumor, and others. Two out of each 1,000 persons examined at the induction stations have been disqualified because of x-ray evidence of such abnormalities. In many instances, previously unsuspected serious disease has been thus discovered in the presymptomatic stage.

"There can be no doubt that this x-ray service by the armed forces will have a lasting effect on the health of the people of New York State. It is an eloquent example of the great potential scope and value of mass chest x-raying in the public health program of today and of the future. As such, it points clearly to the need for extending the use of this medium of case-finding more and more to other groups of the adult population."

It is hoped that the favorable Selective Service experience in tuberculosis case-finding work will spread throughout the entire population in an eventual battle to wipe out tuberculosis.

The good work begun by the armed forces at time of induction, should be extended to include an x-ray picture of the chest on discharge from the armed forces.

The armed forces should likewise distribute to the states and full-time county and city health department all x-ray supplies necessary to carry on this work as soon as they have no further need for the equipment.

The full cooperation of the medical profession is necessary in the eradication of this disease. Cases should be reported promptly so that contacts can be examined and controlled.

A recent New York State study[4] disclosed that during the years 1940-42 about 21% of the fatalities from all forms of tuberculosis were not reported before death. In addition, about 17% of the total were reported within less than 3 months before death and another 6% within 3 to 6 months before death. In other words, it was pointed out, about 44% of the deaths either were not reported at all during life or were reported a relatively short time before death."

The cost of any program is most essential toward its success. Since Congress passed the Selective Service act, about 12 million chest x-ray examinations have been made at induction stations resulting in 120,000 disqualifications because of chest conditions. In round numbers, ten persons are disqualified for every 1,000 examined. An x-ray survey of 3 million industrial workers, including persons of both sexes and those in the older ages, uncovered 20 cases of tuberculosis per 1,000 workers examined.[5]

In the old method case-finding program using 14 x 17 inch film at 70 cents a film, discovering one case for every 100 examined, the cost of finding an active case would be $70.00. With the use of the 4 x 5 film at five cents a film the cost is approximately $5.00. When a questionable diagnosis is recorded on 4 x 5 film, a few may have to be checked by larger size film or by 4 x 5 stereoscope film. For many years intensive study has also been devoted to the use of B C G vaccine in the control of tuberculosis. At the present time workers in this field are optimistic because of the results they are observing in their control study group. This may hold a promise of eventually controlling the disease by vaccination of all in the early days of life as done by Ferguson[6] among Canadian Indians where the fatality rate was reduced by 75% in one generation.

SUMMARY

Tuberculosis is definitely on the increase and becomes one of the major Post-War Public Health Problems. Illinois, because of a lack of an intensified case-finding program is behind its neighboring states, and other populous states in controlling tuberculosis. Tuberculosis is still second in importance as a cause of death among men 20 to 34 years of age, while the highest incidence of morbidity from tuberculosis is still

in the age group from 15 to 29. Tuberculosis control programs should begin with the age of puberty where there is a marked reported increase in the incidence of the disease. Mass x-rays of the population using the small film, preferably the 4 x 5 inch, presents an economical way of finding tuberculosis. It is essential that cases of tuberculosis be discovered during the minimal stage so that they may be returned to their normal life. Tuberculosis beds should be made available for the necessary hospitalization of cases.

CONCLUSIONS

Tuberculosis, at the present time, is usually not diagnosed until clinical symptoms of cough, loss of weight and night sweats appear. , In this stage about 90 per cent require hospitalization, while a high percentage will never again become wage-earning and self-supporting individuals.

The modern public health program calls for mass miniature x-ray case finding among the general population, beginning at the age of puberty. Examination of millions of Selective Service registrants by this method has revealed the presence of tuberculosis in about 12 in every 1,000 x-rayed. 60% of the cases found were of minimal stage where hospital treatment was not necessary. 80 out of each 100 cases so discovered had no previous knowledge of having had tuberculosis.

The modern Public Health program not only calls for mass x-raying of the population, but for adequate hospital facilities for all open cases, and a modern central registry system for periodic x-ray examination of all contacts to known cases of the disease. This follow-up should continue for a period of several years after exposure.

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DISCUSSION

Dr. Maxim Pollak, Peoria: I listened with a great deal of interest to the paper. There are a few things I would like to add to it and emphasize. One important thing which has been brought out is the difference in the decrease of tuberculosis mortality in the decade from 1920 to 1930, and from 1930 on.

We know that in Illinois we have about twenty-three public tuberculosis institutions; according to the Glackin law, the maintenance of tuberculosis sanatoria is left up to the cities and counties. We have three municipal institutions in the state; Chicago, Peoria and Rockford, and twenty county institutions. Most of the county institutions have been established in the decade from 1920 to 1930; after 1930 we have had only four new institutions established. The establishment of tuberculosis sanatoria has a great deal to do with the decrease of mortality.

The second important fact which has to be mentioned is that most of these institutions are in the northern and central part of the state. In the southern part of the state, south from Quincy, there is only one institution, one county tuberculosis sanatorium. It could be shown by statistics that the morbidity and mortality rate is far more favorable in the northern and central part of the state than it is in the southern part.

Now as to the question of increase in case reports, the selective service examinations are the greatest case finding survey as yet undertaken. In Illinois, up to April 1, 1944, over 6,000 men have been rejected by the Selective Service because of tuberculosis. Naturally, not all of these are suffering from active tuberculosis. Because Selective Service regulations are rather strict, men are rejected who show only extensive calcifications. The increase in case reports, to quite a great extent, is explained by this case finding survey.

In addition to that, the great pool of tuberculosis cases in mental institutions is better taken care of today than it has ever been before. Perhaps some of you know that the State Welfare Department has established since 1938, or rather since 1941, its own tuberculosis control program, and extensive tuberculosis control work in mental institutions is going on.

One more point, as far as mobile units are concerned, I am not here to defend the State Department of Health, and I do not belong to it, but Illinois has a mobile unit. The State Department of Health, with the help of the Federal Government, has purchased a 35 millimeter mobile unit and is loaning it to communities for x-ray surveys of industrial workers. To date, this unit has been used in Rockford and in LaSalle County, and at present is being used in Peoria, where we are just starting a survey of industrial workers. This unit has already x-rayed over 25,000 industrial workers.

Naturally many more things in tuberculosis control can and should be done, but as far as the mobile unit is concerned, the State Department has made a very good start, which Cook County could readily follow.

Dr. E. T. McEnery, Chicago: I think this paper

should be discussed, because Dr. Piszczek has brought out one point that one big factor in all these surveys has been the cost associated with it. With the mobile units you can do a mass survey with very little cost. You can take these x-rays and there is no return, and it lets you handle a large number of patients.

I think since his paper shows the cost is five or ten cents, I feel as private physicians we should try to reduce the cost of x-rays. The cost of x-rays has been prohibitive in many cases, because the charge is anywhere from $5.00 to $10.00. If you could reduce that cost to at least a dollar, the people would take more x-rays. If the Federal Department can do it, why cannot private physicians do it? We talk about state medicine, federal medicine; all we do is talk about it. Why do not the private hospital and the private physician do something about reducing the cost of these x-rays?

Dr. E. A. Piszczek (Closing the discussion): Regarding the single Illinois State mobile tuberculosis unit, case finding by this single procedure is like spitting in the ocean. These mobile units take about four or five hundred pictures a day or about 2000 a week or approximately 100,000 a year. I think in this Cook County area we ought to have, ten mobile units going all the time. The cost is not very high compared to the results we could get.

I think public health workers will not be satisfied until they find at least fifty per cent of the tuberculosis in the minimal stage where the patient can be kept at home in his own private environment and under the direction of his private physician. That is our ultimate goal.

Dr. McEnery stressed Mantoux testing. I think our future plans will be a system called a large screen and the small screen. The large screen will be x-raying all adults for tuberculosis. The small screen will be skin testing the children for tuberculosis. I think, Dr. McEnery, we can to some extent limit, almost, the tuberculosis in the younger age group to direct contacts to somebody that is older, in the same family.

For ten years, under the Chadwick study in Massachusetts, they found it was not very profitable to go looking for active cases of tuberculosis in children. It is all right to do a Mantoux test, and if it is positive follow through the family and find out who has tuberculosis. That is how our tuberculosis meningitis cases are found, from active cases. At the present time positive tuberculosis tests are on the increase. In Illinois Research Hospital they had a recent marked increase in the number of children who have been admitted with positive manifestations, designating there has been exposure somewhere down the line.

In the Cook County Hospital for the first time in a good many years, they have had three children at the same time, with Potts Disease in the back, indicating there are many open cases exposing young children.

In any public health program, cost is very essential, and our goal in the state of Illinois, should be that 25% of the population, perhaps 35%, should have a miniature x-ray every year. It is good education, good health education; it makes the person conscious there is such a disease as tuberculosis and pays many dividends to the family physician, in closer co-operation between the patient and the family physician.

As I said, we should not give up until we find at least 50% of all tuberculosis cases in the minimal stage, where we can do something right at home. At the present time we have patients in Oak Forest Sanatorium that have been there since 1912 — thirty-two years, in an institution, never have gotten out, and they will stay there until they die; and so it is with many of our patients that go into our tuberculosis sanatoria today; they are usually there until they die.

It has been estimated that the average cost to the taxpayer, from the time the patient enters the tuberculosis sanatorium until he dies, is about $20,000 per patient.

If we can cut that down in half, by finding 50% of the cases in the minimal stage, we are saving a lot of money to the taxpayers.

THE CONTROL OF TUBERCULOSIS IN WAR TIME

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Simultaneously with the war against the Axis, the United States extended its fight against tuberculosis on an unprecedented scale through the radiographic chest examination of every selectee who comes before the Induction Boards. It has been estimated that by the end of 1943 in the course of these examinations 20,000 cases of active tuberculosis have been discovered, who are in need of sanatorium care.

Because Selective Service Regulations require the rejection of individuals with extensive calcification in the lungs in order that they may be protected from a possible reactivation of their disease while in service, not every selectee rejected because of tuberculosis is suffering from active disease. Hence, the rejected men need further study and advice concerning their condition.

In Illinois, through the cooperation of the State Selective Service System, the Division of Tuberculosis Control of the State Department of Health, the Illinois State and local Associations and the various public sanatoria, Medical Advisory Board No. 39 has been organized for this purpose.

Presented before the Section on Medicine, 104th Annual Meeting, Illinois State Medical Society, Chicago, May 16, 1944.

According to a statement on April 1, 1944 of Mr. W. P. Shahan, Executive Secretary of the Illinois State Tuberculosis Association and of the Downstate Section of Medical Advisory Board No. 39, "In down state Illinois there have been 6,267 men rejected for the defect of tuberculosis. The office of the Secretary has referred the names of 2,991 men to the members of the Board for reexamination and 1,136 men to nurses cooperating with the Board in counties where no sanatoria are maintained. In counties where there are no nurses and no doctors who are members of Medical Advisory Board No. 39, we find that there are 1,807 men. We hope to work out an arrangement within the next few weeks in order to take care of those names who are referred to no one."

Of the 4,127 men referred for examination, 259, or 6.2 percent, have moved out of the State before they could be examined; 85, or slightly over 2 percent, refused reexamination; 32, or less than 1 percent, have enlisted in some branch of the service irrespective of the fact that they have been previously rejected; and 2,482, or 60.1 percent, were reexamined.

Of the 2,482 men reexamined, 1,691, or 68.1 percent, are totally unfit for military service. However, 546, or 21.9 percent, are fit according to the opinion of members of the Medical Advisory Board, but not according to army standards, and 245, or 9.8 percent, are fit according to army standards, but for some reason or other, were not so classified by the Induction Board. Of the entire group examined, 248, or 10 percent, were diagnosed as suffering from active pulmonary tuberculosis and in need of sanatorium care. Records indicate that most of them have received such care; 8 of these active cases, or 3.2 percent, have died.

In our own city during the years 1942 and 43, 115 selectees were rejected because of tuberculosis. Of these, however, only 27, or 23.4 percent, were suffering from active disease. Of the 27 active cases, 19, or 70.3 percent, were minimal; 4, or 14.8 percent, were moderately and 4, or 14.8 percent, far advanced. One of the latter died about six months after his admission to the Sanitarium. Thus, the Induction Board examinations constitute the greatest tuberculosis case finding survey, as yet undertaken.

It must be regretted that the history of successfully arrested tuberculosis is not considered as a cause for rejection. Thus it may happen that the years spent in following the cure on the part of the selectee and the cost spent, most often from public funds, on this cure, may readily be jeopardized when such selectees are inducted. Fortunately, however, it has been our experience that the situation was easily and promptly remedied when such cases were brought to the direct attention of the Surgeon General.

It is also regrettable that no follow-up service has, as yet, been established for women rejected at the examinations for the various women auxiliary forces. No doubt that in the course of these examinations, too, a significant number of tuberculosis cases were discovered.

Notwithstanding the excellent selection, by December 31, 1943 "the Veterans Administration had adjudicated the claims of 4,858 enlisted men" who have been discharged from the various services because of tuberculosis (Long and Al. Journal A.M.A., V. 124: 14, April 1, 1944).

In order that the War Production front at home be protected from tuberculosis, the U. S. Public Health Service has instituted its case finding surveys in the Governmental War industries, the country over. It is estimated that by the end of 1943, 2,000,000 such examinations have been made and 5,000 cases of active pulmonary tuberculosis so discovered.

Prompted by the activities of the U. S. Public Health Service many of our State Health Departments, local and state tuberculosis organizations have established their mobile x-ray units and are engaged in the survey of the industrial workers. In Illinois the Division of Tuberculosis Control of the State Department of Health has established a 35 mm. mobile x-ray unit and at the joint request of the local medical societies, tuberculosis sanatoria and tuberculosis associations makes it available for industrial surveys. Thus far such surveys have been conducted in Springfield, Rockford and LaSalle County, and one is in progress at present in Peoria. Over 20,000 industrial workers have so far been examined and a goodly number of active cases found. The cooperation received at the various industrial plants on the part of the management, as well as the workers, is excellent. The examinations are conducted in the plant and on the company's time.

The medical departments of the large industrial plants are usually equipped with an x-ray department and preplacement chest x-ray examinations have become a routine procedure with many. Scattered studies published from diverse industrial health departments show a case rate of 0.5 to 1.5 percent. The U. S. Public Health Survey rate is 1.0 percent.

The activities enumerated have opened a new epoch in the fight against tuberculosis. They can come to fill fruition, however, only through the fullest cooperation of the family physician. There is a distinct need for a greater awareness of the asymptomatic active pulmonary tuberculosis on the part of the general practitioner. What is the use of discovering early tuberculosis, when the patient at the advice of his family physician refuses to undergo sanatorium care, because he is feeling well, able to go on with his work, and his physician upholds his contention? Such cases are not infrequently on the record. Tuberculosis is a dangerous disease, no matter how insignificant the lesion may seem when discovered on the x-ray of an apparently well individual.

Fear has been expressed repeatedly that under the strain and stress of the war there will be an upward turn in tuberculosis morbidity and mortality. As yet, however, the mortality curve continues its downward trend in most localities.

In our institution we have found, however, that there is a significant decrease in the relative occupancy of beds in the women's division at the same time when the percentage of male patients has increased, due to the relatively large number of patients discovered by the Induction Boards and other surveys. We have also noted a distinct change in the source of referral of our patients. Last year for instance, of the 92 active cases discovered, only 41, or 44.5 percent, were referred to us by the practicing physicians. Had we waited until all those who suffer from active tuberculosis reported to their physicians for advice, we would have missed more than half of our active cases. Manifestly the present practice of advocating that patients visit their doctor only when seriously ill, and the increased patient load our over-burdened family physicians have to carry, are not conducive to proper tuberculosis control.

Efforts must, therefore, be made to counteract this harmful trend and prevent the deterioration of the hitherto favorable results in tuberculosis control. The answer to the how? is obvious. Instead of waiting until the tuberculosis patient shows up voluntarily in his doctor's office, the patient must be searched for among the apparently well individuals. In other words, tuberculosis surveys must be instituted. It is unfortunate indeed, that in many quarters of the profession the activities of our public sanatoria and voluntary tuberculosis associations are looked upon as the practice of socialized medicine, particularly so in reference to case finding surveys.

In reality nothing can be further from the truth. The technique of tuberculosis surveys is a genuine contribution of American Medicine to our modern therapeutic armamentarium. It has been developed through American ingenuity and resourcefulness by American doctors, whose chief interest lay in the eradication of tuberculosis. It has been recognized from the very beginning of the organized fight against tuberculosis that the combat of tuberculosis cannot be left to the individual patient, but must be conducted through communal efforts, as was the fight against typhoid and malaria for instance. It is due to the effective work of the leaders of the medical profession that from public funds sanitary sewage disposal plants were constructed, stagnant water pools drained and other anti-mosquito measures instituted until typhoid and malaria have become practically extinct. These conquests over disease represent some of the greatest achievements of modern medicine and enhance the confidence of the public in medical practice with its consequent rewards. One can safely predict that the present methods of tuberculosis control will lead to similar results. Hence, the plea for the active support and participation of organized medicine in these efforts.

In the fight against tuberculosis every practicing physician should play a leading role. The routine tuberculin testing of every patient and the chest x-raying of every positive reactor would lead to some surprising results. Mass surveys of large population segments in various parts of the country have discovered from one-half to one percent active cases. Surveys conducted in various hospitals yielded around 1 to 2 active cases per 100 admissions. It is safe to assume, therefore, that every one of us in his

own practice could duplicate these results.

Tuberculin for such testing is made available in many communities by the tuberculosis associations or sanatoria. The x-raying of positive reactors who cannot afford this expense can also be done by these organizations free of charge to the patient. The miniature x-ray film has made this procedure far less expensive than was the case heretofore.

For some unexplainable reasons, by and large, sputum examinations are resorted to only if and when tuberculosis is definitely suspected. The routine examination for tubercle bacilli in every instance when a patient expectorates would also lead to many unexpected discoveries.

It has become fairly general to x-ray the chests of patients who are suspected of having pneumonia. A final x-ray check-up of these patients when their disease has apparently subsided would also disclose a significant number of tuberculosis cases.

Premarital examinations have been made obligatory by law. The inclusion of a search for tuberculosis in these examinations would disclose not only a goodly number of cases of tuberculosis, but would prevent tuberculous parents from propagating their disease to their offspring. The same can be said of prenatal examinations.

Much can and has been accomplished in tuberculosis prevention by the introduction of mass tuberculosis surveys in diverse population groups as has been pointed out above. These surveys, however, should be instituted on the basis of sound principles and considerations.

Here first of all we would like to mention the survey of nurses and hospital personnel in general. Tuberculosis must be considered as an occupational disease as far as nurses and hospital personnel are concerned because the morbidity and mortality rates of tuberculosis among nurses, interns and other hospital personnel is exceedingly high. This could be distinctly lowered by the systematic search for tuberculosis in these groups. Not only that, but tuberculous nurses and interns can readily transmit their disease to the patients they attend. Hospitals have a moral and legal responsibility to prevent such an occurrence. In states which have an Occupational Disease Act on their statutes, including Illinois, hospitals could reduce the insurance claims against them, which are increasing in numbers as time goes on. Industry has learned from experience that the introduction of health protecting procedures is paying high dividends, but the sixth largest industry in the country, namely hospitals, have barely scratched the surface as yet, although they have the necessary equipment and personnel available on their premises.

Little consideration is being given at present to the fact that our old population groups represent a distinct source for tuberculosis infection. Yet the morbidity and mortality rates of the old are considerably higher than of the young age groups. Last year for instance, in Peoria, 23.5 percent of the people who died of tuberculosis were 60 years old or older, and the mortality rate in the age group of 45 years and older was 60.8 per 100,000. Some way could be found, we believe, to require that the old age pensioners be systematically examined for tuberculosis.

Patients of out-patient departments and clinics and relief clients represent another important source of tuberculosis cases. Thus, last year a survey of the patients of our St. Francis Community Clinic, yielded 4.3 percent active cases of the tuberculin positive reactors, and 1.5 percent of the clients of our Relief Office were found to be suffering from active pulmonary tuberculosis.

In war time the search for active tuberculosis among our civilian population distinctly aids our all-out war efforts. The prevention of tuberculosis protects our armed forces, the home production front and the oncoming generation alike. Organized medicine and its every individual member, each according to the sphere of its influence, and activity, must take a leading role in the combat of this endemic disease. The present generation has conquered many an epidemic disease and is handing over as unfinished business to the next, the conquest of tuberculosis. The tools, equipment and technique at our command are adequate for a successful fight, if the medical profession as a whole takes the leadership in their full and intelligent utilization.

DISCUSSION

Dr. Henry Sweany, Chicago: Unfortunately I did not hear all of Dr. Pollak's paper, but through his kindness I was able to read the manuscript before I

came to the meeting so I know very well what he said, and I shall make a few comments.

We all are familiar with some of the work that Dr. Pollak has been doing on finding tuberculosis in our State institutions. In his present paper he has presented a most pertinent plan with regard to the handling of tuberculosis in general. This problem is being revealed now by many of our organizations, especially those that have to do with the armed forces.

There is nothing nearer to my heart than this question of what to do with the tuberculous individual found by the various service organizations as well as those who will be found by future investigation. Let me applaud his recommendation, therefore, that this is the doctor's golden opportunity.

In this connection it should be remembered that tuberculosis has changed over the past forty years. There was a time when the diagnosis was made after the condition was so far advanced that little treatment could be given. Such a person was considered by the lay people and by many doctors as hopeless, as a patient for whom nothing could be done. During the last few decades the situation has changed from this passive type where at the most only rest could be given, to one where there is more active treatment to be given, such as collapse therapy, surgery of the lung with rest in bed.

The change in diagnostic facilities has been phenomenal. Fifty years ago tuberculosis was recognized only by the last symptoms: chronic cough, loss of weight, elevated temperature, flushed face. Then the discovery of the tubercle bacillus came along, and then the x-ray, and more recently the fluorograph units and tuberculin studies by means of which we are finding the early lesions.

Tuberculosis is now a disease in which every doctor should become interested in helping to find if not helping to handle, because he occupies the best vantage point. It has been estimated that every person sees a doctor about once in three years, so the doctor is the man who will see all individuals over a period of three to five years, and because of this he should be able to spot the disease in its earliest stages. Douglas has found that in his surveys in Detroit 75 per cent of the cases were found by the doctor in his private practice — although mostly in the advanced stages.

I would amplify the plea that Dr. Pollak has made that we as physicians accept our responsibility and go out and try to find this disease as early as possible wherever it is to be found and report it to the Health Organizations, who will handle it from then on.

Men returning from combat areas who have been unfortunate enough to contract tuberculosis will not take kindly to hospitalization and other restrictions when their ambition for years has been a return to normal living. To provide proper treatment for these men as well as protection for their families will be one of the difficult medical and social problems facing those responsible for tuberculosis control. A. J. Chesley, M.D. and D. A. Dukelow, M.D., Minn. Dept. of Health.

NEUROLOGICAL SYMPTOMS OF INFECTIOUS MONONUCLEOSIS

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More than fifty years have elapsed since Pfeiffer[1] described the first case of infectious mononucleosis, under the term "glandular fever." He described a mild disease of children, occurring pandemically and in epidemics, characterized by enlarged cervical glands, red throat and enlarged liver and spleen. For thirty years after Pfeiffer's first description of this disease, this concept persisted. In 1920 Sprunt and Evans described a peculiar blood picture in cases occurring in young adults[2], which otherwise fit the description of Pfeiffer. The diagnosis, however, remained rather uncertain until 1932 when Paul and Bunnell[3] described a peculiar property of the blood of these patients. They found that the blood contained antibodies which had the power to agglutinate sheep cells. The widespread adoption of this test, with the refinements offered by Davidson and Walker[4] and others[5, 6, 7, 8, 9, 10, 11, 12], has aroused tremendous interest and a very rapidly growing literature on the subject.

Incidence. — The actual incidence of this disease is difficult to estimate. One thing is definite — it is much more common than it has been thought to be. The case reports come almost uniformly from hospital cases, it being particularly common among interns, nurses and hospital personnel. Whether or not it is actually more common in hospital groups is difficult to say, but it may be suspected, that the routine blood work done in hospitals has established the diagnosis in this group and that it probably would have been missed had the same cases been seen in their homes.

Certain it seems that the greatest incidence is among the young adult group. Rarely does one see cases beyond the age of 35. It has been suggested that it is more common among those leading a rather sedentary existence.[13, 14] The relationship between occupation and contagion would seem to us to arise solely from opportunity of contact.

Etiology. — The cause of infectious mono-

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nucleosis is not yet known. In general there have been three causative organisms suggested with no convincing proof for any.

1. Fuso spirochetal organisms of Vincent.

The very common finding of spirochetes and fusiform bacilli in smears taken from the throats of patients with an exudative pharyngeal type of infectious mononucleosis has led to the obvious conclusion that here was the cause. In this connection we found that in the last fifteen cases of the pharyngeal or anginose variety of infectious mononucleosis studied in St. Luke's Hospital in Chicago, spirochetes and fusiform bacilli were found without exception whenever direct smears were made. Throat cultures, in cases with sore throats but no exudate, revealed a variety of organisms, perhaps the most common being a variable percentage of the hemolytic streptococcus. However, the negative throat smears, in cases where no sore throat existed, casts serious doubt on the validity of the arguments of those who argue for the fuso-spirochetal origin of this disease. The successful reproduction of this disease, or at least the reproduction of a similar blood picture in rabbits, by the injection of tonsillar material and glandular tissue containing fuso-spirochetal organisms, is not valid evidence.[15] These same tonsils or glands may contain other causative agents of a more specific nature.

2. Organisms of the Genus Listerella Monocytogenes have gained considerable favor in recent years as probable etiologic agents.[16] Nyfeldt[17, 18] reported the recovery of this organism in the blood of patients suffering from infectious mononucleosis. However, this has lacked confirmation by other workers and recently Janeway and Dammin[19] completed a study of the relationship of the organisms of the Genus Listerella to the disease as studied by the agglutination reaction. Studying antibodies against these organisms, they failed to find significantly higher titers in the blood of patients suffering from infectious mononucleosis than were contained in the blood of patients with a variety of other ailments, and the blood of normal controls.

3. This brings us to the most recent idea concerning the etiology — the concept that the disease is of virus origin. The arguments for this concept are at present time rather vague and ill-defined and perhaps are not as yet out of the "opinion" class. Nevertheless, as our understanding of the scope of virus diseases broadens, more and more is one forced to the idea that here, too, a virus is the offending agent. The respiratory origin of the disease, the negative blood cultures with ordinary culture media, the ability to transmit the disease by injecting that same blood into animals[20], the striking similarity between this disease and influenza, the lack of effective response to the sulfonamides[21] — these, and many other bits of evidence, all point to the virus origin of the disease. As improved methods of virus study are made available, one may anticipate the proof of the virus etiology of infectious mononucleosis to follow soon after.

Pathology. — The pathology of this disease has been studied quite extensively as far as blood and lymph gland changes. The total number of white blood cells is generally increased, although a few cases have been reported of a decrease in the total number. There is a relative and absolute increase in the number of lymphocytes, most of which are atypical. Total counts of 12,000 to 18,000 are common, the percentage of lymphocytes in some cases rising as high as 80 or 90 percent. There is a secondary neutropenia. Basophilia in the protoplasm of the lymphocytes gradually replaced by an azurophile granulation is typical. The lymphocytes are definitely not normal cells in most instances. Some confusion has arisen between this disease and the acute leukosis and myelopathies.[23, 24] Sternal puncture studies do not disclose bone marrow involvment[25, 26] in this disease, but a myelocytic condition which Leitner[28] attributes to the interference with cell maturation because of splenic hyperfunction. This same author states that the splenopathic interference also accounts for the leukopenia and granulocytopenia of the second phase of the evolution of the disease.

During the course of the disease the blood Wassermann and Kahn may become positive. This rarely persists beyond the 4th week but, no doubt, lack of knowledge of this fact has lead to many tragic errors in diagnosis. Dr. Roy R. Kracke, Professor of Pathology and Bacteriology at Emory University School of Medicine, told us of four such instances that had come to his personal attention. All four cases were getting

anti-luetic treatment for a lues that had never existed[47].

Lymph gland studies reveal collections of small lymphocytes but the complete obliteration and invasion of normal structure seen in leukemia is not found[30].

The diagnosis of the disease rests at the present time on studies of blood films and findings of the heterophile antibodies of Paul and Bunnell.

While it is true that heterophile antibodies may appear in the blood stream in a variety of conditions, mainly of an allergic nature, such as serum sickness, etc., it is rare to find them present in a dilution of more than 1 to 32. Why the disease should produce antibodies that agglutinate sheep cells is not known. Sheep cells antibodies that appear in diseases other than infectious mononucleosis are not effective as agglutinins except at 37.5 degrees C., while those of infectious mononucleosis are effective down to 5 degrees C. Davidsohn[5] made a valuable contribution to this test in 1937 with his differential test which serves to distinguish this disease from other very similar diseases with borderline titers of heterophile antibodies. It is further useful in late cases where the titer of heterophile antibodies is low. Briefly, Davidsohn found that the removal of the agglutinins for the erythrocytes of sheep with beef erythrocytes, and the failure of guinea-pig kidney to remove them completely, establishes the diagnosis of infectious mononucleosis, while conversely, removal of the sheep agglutinins with guinea-pig kidney excludes the disease.

In most clinics a positive heterophile agglutination of 1 to 32 is considered suggestive and 1 to 64 conclusive, when Davidsohn's technic is used.

The febrile course may persist from 10 days to 3 or 4 weeks. Recrudescences are fairly common.

Lymph gland enlargement may persist for months. Mental depression has persisted for as long as 6 months.

Clinical picture. — Since the disease was first recognized, it has been customary to arbitrarily divide the cases into,

1st, anginose — those with sore throat,

2nd, glandular — with little or no throat involvement,

3rd, febrile — in which glandular enlargement is late in its manifestations. We see very little to be gained by this arbitrary division, as it is certain that these cases all overlap to some extent and it seems equally certain that all have a common etiological agent, or at least are antigenically the same or very nearly so. It seems to us that it is the limitations or lack of limitations to invasion, and the bodily responses, that tend to differentiate, if it be advantageous to differentiate different types of the same disease. One might arbitrarily differentiate individual differences in most of our recognized disease entities if this were desirable. The disease may be bizarre and atypical.[32, 35, 34] The most common errors in diagnosis occur in confusing this disease with diphtheria, Vincent's angina, influenza, tuberculosis of lymph glands; abdominal conditions such as jaundice, acute appendicitis; or central nervous system involvement.

Perhaps one might list as cardinal points in the diagnosis:

1. Fever.

2. Sore throat; may be late and may never be present.

3. Headache; rather constant.

4. Enlarged cervical glands; less often, axillary and inguinal glands.

5. Palpable splenic enlargement. One case of spontaneous rupture of the spleen was recently reported by King[31]. Some enlargement of the liver is common.

Less often are found:

6. Jaundice; presumably from the pressure of enlarged abdominal glands, or hepatitis.

7. Skin rashes; generally occurring at the height of the disease and resembling somewhat a drug rash. Its distribution is generally confined to the trunk.

8. Chronic cough from mediastinal glands.

9. Central nervous system symptoms.

The literature has recently produced a few case reports of meningeal symptons occurring during the course of infections mononucleosis.[37, 38, 39, 40, 41, 48] I should like to report 4 cases of my own, each showing a slightly different type of central nervous system involvement.

CASE 1

B. L. — Female, age 22. Complaint — coldness, fever, aching in legs, headache, weakness. Entered St. Luke's Hospital August 4, 1941. Temp. 102R.

Onset 4 days before. Physical examination negative except for slight stiffness of neck, bilateral positive Oppenheim, Babinski positive on right side and suggestive on left. Slight cervical adenopathy. No sore throat.

Blood smear, August 4. Lymphocytes (atypical) 56, Monocytes 2, eosin 1, basophil 1, band 1, neutrophil 39. Total WBC 10,150, RBC 4.03, HB 11.2 Gms. Kahn negative.

Spinal fluid under 250 mm. of pressure. Clear, colorless. Ross Jones 2 plus. Pandy 3 plus. Total protein 144, cells 150, 85% lymphocytes. No organisms seen. Sugar 56. Heterophile agglutination positive 1-128. Guinea pig innoculation; animal killed in two months. No pathology.

Treatment: Aspirin gr. x PRN. Complete recovery in 4 weeks.

CASE 2

F. H. Male, age 24. Entered St. Luke's September 29, 1940. Complaint — sore throat one week, fever two days, myalgia one day. "Cold" ten days before. Throat had membrane. Throat culture showed 50% hemolytic streptococcus. Blood culture negative. Temp. 102R. entrance, 104R. on third day. Gradually subsided to normal at end of three weeks. RBC 4.75, HB 14.7 Gms., WBC 8,500. Diff. — lymphocytes (atypical) 58, mono. 6, neut. 27, Bas. 1, band 1, Heterophile 9-30-40 positive 1-256 warm titer, 1-1024 cold titer. This went to 1-1024 warm titer, 1-2048 cold titer at end of 2½ weeks. Urine neg. Kahn neg. After 10 days complained of pain down both arms with weakness and inability to move left arm away from side. Discs were normal. Definite atrophy of the deltoid and shoulder group began to appear. Spinal fluid showed 6 cells, 4 plus Pandy, 3 plus Ross Jones. Total protein 100. Kahn neg. Complete recovery in 8 weeks. Treatment: Sulfathiazol Gm. 1 every 4 hrs. for first 3 days, then Aspirin gr. x PRN for discomfort.

CASE 3

T. S. Male, age 31, entered St. Luke's August 10, 1941. Onset 5 days before. Headache, lassitude, nausea, fever. No muscle weakness or rigidity. WBC 10,850. Diff. — lymphocytes (atypical) 73, mono. 2, neutro. 25. Spinal puncture on 2nd day — cells 4, Ross Jones 2 plus, Pandy 3 plus. Protein 80 mgs. Kahn neg. Pressure 300 mm. of water. Heterophile agglutination warm titer 1-512, cold titer 1-1024. Treatment: Sulfathiazol Gm. 1 four times daily for 4 days. Temperature normal after 2 weeks. Complete recovery in 4 weeks.

CASE 4

E. J. R. Female, age 24. Entered St. Luke's October 4, 1941. Temp. 100R. Complaints — headache, backache and sore throat, one week's duration. Physical findings — tonsillar exudate. Smear positive for Vincent's organism. Enlarged cervical glands. Spleen became palpable during hospital stay. Spinal puncture — fluid pressure 170, Ross Jones negative, Pandy 1 plus, protein 30 mg. No cells found. Kahn neg.

Blood — RBC 3.8, HB 10.8, WBC 9,850. Diff. — Lymphocytes (atypical) 66, mono. 1, neut. 32, bas. 1. Heterophile agglutination 1-256 cold titer, 1-16 warm titer. Temperature normal in 3 weeks. Some recurrence for one week, 2 weeks later. Complete recovery in 8 weeks.

Treatment: Sodium Cacodylate gr. viiss, daily IV for one week during height of sore throat.

A suggestion is contained here that at least some cases of lymphocytic meningitis are really cases of infectious mononucleosis with meningismus. Huber[39] in 1938 reported 3 cases exhibiting meningismus, 2 of which showed increase in the lymphocytes in the spinal fluid. Schmidt and Nyfeldt[38] have described 5 cases of meningo-encephalitis. Epstein and Dameshek[37] as early as 1931 reported one case of glandular fever with CNS involvement and an increase in the lymphocyte count of the spinal fluid.

Case number 2 has been most interesting to me because as far as I have been able to find out, it is the first such case of the so-called Guillaine-Barre syndrome with paralysis, to be identified as infectious mononucleosis[49]. Richardson[50] 1942 described a case of paralysis of the Serratus Magnus muscle occurring in the 3rd week of a typical case of infectious mononucleosis. In 1916 Guillaine[42] in collaboration with Barre described a clinical syndrome characterized by motor disturbance, loss of tendon jerks with preservation of cutaneous reflexes, paresthesias with slight disturbances of objective sensibility, tenderness on pressure of the muscles, little change in the electrical reactions of the nerves or muscles, and noteworthy hyperalbuminosis of the cerebro-spinal fluid in the absence of cytological reaction. Madigan and Marietta[43] in 1938, and Stone and Aldrich[44] in 1940 reported cases of acute polyradiculoneuritis "Guillaine-Barre syndrome." In particular, the case of Madigan and Marietta might fit into the diagnosis of infectious mononucleosis because the only previous history was that of a sore throat on admission to the hospital.

In 1936 Gilpin, Maersch and Kernoban[45] presented a study of 35 cases of "neuronitis" which they had collected, most of which had followed some transient infection. They were characterized by an increased protein in the cerebro-spinal fluid with little or no increase in cells. Motor paralysis was generally recovered from in from several months to 2 years. In no case had infectious mononucleosis been diagnosed.

Bassoe[46] in 1938 described a series of cases all classified as Guillaine-Barre syndrome, all with an onset suggestive of infection, more or less paralysis, pain and other sensory disturbances, high protein value and low cell count in the spinal fluid — all exhibiting a good prognosis. The suggestion was made that the disease might be of virus origin but no blood studies were shown on any of three cases reported. Perhaps some of these might have been unrecognized cases of infectious mononucleosis.

Case number 3 showed increased spinal fluid pressure, hyperalbuminosis with no increase in cells.

Case number 4 shows only headache without abnormal spinal fluid findings.

Treatment. — In cases complicated with Vincent's organisms in the tonsils and throat, arsenicals in the form of neoarsphenamine or sodium cacodylate have been thought to be of value. We feel there may be some danger in this, particularly if the neutropenia is severe.

Members of the sulphonamide family have been tried in the past five years with very disappointing results. The same objection might be raised to their use as to that of arsenic — the danger of deepening the neutropenia.

The one bright spot on the horizon, as far as treatment is concerned, is the recent report of Lassen and Thomsen[34, 35] on the use of convalescent serum.

These authors report on the successful use of convalescent serum in twelve cases of infectious mononucleosis, nearly all presenting severe angina with considerable lymph gland involvement, selected from a larger number serving as control groups. The serum was secured from adult patients one or two weeks after they had become free from fever. It was injected intravenously in doses of from 60 to 300 cc. The control cases were treated with non-specific serum, with neoarsphenamine, or symptomatically with analygesics and antipyretics. One-fourth (25%) of the twelve serum-treated cases showed a critical fall of temperature within 24 hours, and an additional 50% showed normal temperatures within 48 hours. All twelve patients felt subjectively better within 24 hours after injection, 11 showed a distinct objective improvement within the same period. No subsequent complications were noted, such as peritonsillar abscess or otitis media. In the control group treated with non-specific serum (Diphtheria antitoxin) none showed improvement within 24 hours, and only 34% showed any fall of temperature after 48 hours. Neoarsphenamine seemed ineffective.

SUMMARY

Four cases are reported, all proven cases of infectious mononucleosis, all 4 exhibited some toxic cerebro-spinal symptons, 1 with negative neurological findings, 3 with definite increased spinal fluid pressure, 1 with an increase of lymphocytes in the spinal fluid, and 1 with definite Guillaine-Barre syndrome, previously unidentified with this disease. Recovery was complete in all. The diagnosis was made by blood smear study and the use of the heterophile agglutination reaction.

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DISCUSSION

Dr. Roland P. Mackay (Chicago): Mr. Chairman, Ladies and Gentlemen: I have been greatly interested in Dr. Coogan's penetrating and provocative discussion of acute infectious mononucleosis in its neurologic aspects.

Last September we saw a girl, age 20, unmarried, who, on the 27th of September, had had nausea and headache, perhaps a little fever. On the 28th she was worse and had to quit work. That evening she had vomiting and diarrhea and developed an urticarial rash over her trunk.

On the next day she was perhaps a little worse, and had some epigastric distress and chills and fever with what was called tremor and spasm of the right hand. On the thirtieth of September, the fourth day of her illness, she was somewhat better; but after eating a rather hearty lunch she grew worse and vomited her luncheon. Her temperature at that time was 102 by mouth, and she again had this tremor of arms and of her body, with what appeared to be a spasm in her hand.

On the first of October, she was admitted to St. Luke's Hospital because of difficulty in swallowing and acute poliomyelitis was suspected. However, she was neurologically negative. Her difficulty in swallowing seemed to be due to a sore throat. In addition, she had periods of hyperventilation, with carpal spasm and stocking anesthesia on both legs up almost to the knee. There were tender lymph nodes in the right side of her neck, and Trousseau's sign was positive on both sides. Chvostek's sign was negative. This girl seemed to be suffering from hyperventilation tetany and was probably psychoneurotic, but the fact was recognized that she had some medical illness which I did not presume to diagnose.

On the first day her red blood count was 3,950,000; the hemoglobin 11.3 grams; white blood count 6,450, of which 25% were lymphocytes, 53% were polymorphonuclears, and 22% band cells.

Five days later another blood count was done. Red count was 4,320,000; hemoglobin, 13.2 grams; white count had risen by that time to 11,900 of which 79% were lymphocytes, 18% polymorphonuclears, and 3% were band-shaped cells. Heterophile agglutination was positive.

The diagnosis was acute infectious mononucleosis, with the hyperventilation of tetany. The spinal fluid findings were quite negative in this case.

To pass on to a discussion of Dr. Coogan's paper, I believe that his treatment of the subject brings up two major problems. The first is the relationship of acute infectious mononucleosis to the so-called benign chorio-meningitis which we see not infrequently. I am inclined to think that while this condition is also probably a virus disease, it must be a different virus, perhaps related to the hypothetical virus of infectious

mononucleosis. The reason I think it is not the same virus is that the clinical picture in typical cases of acute benign lymphocytic meningitis is quite different from that which Dr. Coogan has described and which we saw in the case that I have just detailed.

Furthermore, it is quite rare that there is any mononucleosis in the blood in these cases of chorio-meningitis. It is quite difficult to find adequate data on that point; however today, in hunting for such a report, I ran across an article by Dummer, Lyon and Stevenson in the Journal of the American Medical Association, February 20, 1937, in which he described the cases of 22 children with lymphocytic chorio-meningitis. And in that series of cases he made a differential blood count on all of the patients. He had some graphs to show the differential blood counts, and in summarizing those graphs one may say that the leukocytic count varied between 7,000 and 18,000; mostly, however, between 7,000 and 10,000. The differential count varied. Lymphocytic fraction of the white count varied from between 10% and 65%. One or two cases had 65% mononuclear lymphocytes. But mostly the lymphocyte increase is varied between 10% and 30%, while the polymorphonuclear varied between 30% and 90%, mostly from 65% to 90%.

The other question that presents itself is whether there is any relationship between infectious mononucleosis and so-called acute infectious polyradiculitis or polyneuritis, in which there is an increased protein in the spinal fluid without increase in the cell count.

The picture is quite different from those seen in typical infectious mononucleosis. These patients are dramatically, acutely ill in most cases, and they have a pronounced polyneuritis and tenderness, marked weakness, and sometimes pronounced paralysis of the face. Sometimes these patients die. So far as my experience is concerned, mononucleosis does not occur in the blood. I am very fortunate in being able to report three patients that are in the Illinois Neuropsychiatric Institute with this syndrome. I had some differential counts made on these patients and I am able to tell you that on one of them the red count is 5,100,000; white count, 4,800; polymorphonuclears, 53%, lymphocytes, 43%, monocytes, 3% and eosinophiles 1%.

On another the red blood count is 4,850,000; white blood count is 11,400; polymorphonuclears 74%; lymphocytes 19%; monocytes 4%; eosinophiles 3%.

In the third case in which the patient has a pneumonitis (and perhaps this destroys the value of these figures), the white count is 18,500; polymorphonuclears 58%; lymphocytes 31%; monocytes 5% and eosinophiles 3%.

So I think that while Dr. Coogan, Dr. Martinson and Dr. Mathews are certainly thought-provoking in suggesting that there is probably a close relationship between the virus in these three illnesses, one perhaps should not think of these diseases as being in any way the same.

We know little enough about virus diseases, but I think it is not difficult to postulate that viruses, like bacteria, very often resemble each other, and may in exceptional cases imitate each other, although differing specifically from each other.

I want to congratulate Dr. Coogan and his collaborators on their paper. It has been a stimulating and interesting one and I think more work like this will help materially in these questions.

Dr. Coogan: I have only one thing more to say in closing, and that is that today in a conversation with Dr. DeTakats, one of my colleagues, he said that he was very much interested in this question because in the past two years two cases had come under his observation in nurses. Following a bout of infectious mononucleosis excessive sweating of both feet occurred. Cold wet feet which became so severe that the nurses were unable to work occurred. Finally bilateral sympathectomies had to be done on both cases. He was questioning whether the sympathetic portions of the central nervous system might not also suffer occasionally in infectious mononucleosis.

ACUTE PYOGENIC OSTEOMYELITIS OF THE FACIAL BONES

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Osteomyelitis of the maxillae is very common, being about eighth in frequency in skeletal involvement. It occurs at all ages.

The superior maxilla arises directly in membrane. Two centers of ossification contribute to the formation of this bone, one for the premaxilla and the other for the maxilla proper. The suture line between these two in the palate is present until middle life. The superior maxilla contains the antrum of Highmore and the upper teeth. It is thus closely related to the mouth, nose and orbit.

The blood supply of the superior maxilla springs, for the most part, from the trunk of the internal maxillary artery. These branches are the alveolar, the infra-orbital, the sphenopalatine and the descending palatine arteries. The ethmoid, frontal and nasal branches arise from the ophthalmic artery while the external maxillary springs from the external carotid. Anastomosis of these arteries is so intimate that they seldom function as end arteries. The periosteum has few vessels, the alveolar mucosa supplying most of those present. Proof of this deficiency is the absence (or meager regeneration) of any new

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bone after disease or destruction of any portion thereof.

The inferior maxilla (or mandible) is developed from both membrane and cartilage. It is the second bone to undergo ossification. It can be looked upon as one of the long bones, being made up of two bent halves which meet at the symphasis.

The blood supply of this bone is more unique than the superior maxilla. The inferior dental artery arises from the first portion of the internal maxillary artery, courses through the lower ramus and body to nourish its appropriate side (and teeth), effects collateral circulation through its dichotomous branches with its fellow of the opposite side, at the symphasis menti. Unlike the superior maxilla, the periosteal circulation in this bone is abundant except over the upper ramus and its processes, where muscular arterial supply sufficies. We thus see the potentialities for good involucrum formation here.

Besides the usual sources of osteomyelitis incident to all bones, we find dental pathology intimately associated as an etiological factor in both maxillae and in the superior maxilla infection of the antrum of Highmore constituting another potential point of origin.

Odontogenous factors inciting osteomyelitis may be listed as:

a) *Dental caries* which may be superficial or deep, involving the pulp chamber and root canals.

b) *Periapical abscesses* which may be secondary to dental caries, improper root canal technique, trauma rendering the tooth avital, or it may be of metastatic origin. Wilensky[1] is of the opinion that a point of fixation develops in the apical vascular structures, secondary to occlusion trauma. This results in a relatively circumscribed lesion with erosion at the root apex and the adjacent root socket. In turn, this culminates in an abscess cavity lined by organizing granulation tissue. Streptococci hemolyticus is the common offender.[4] Inflammatory or traumatic periocemental lesions may have associated periapical pathology. So-called blind abscesses, lacking a sinus tract but discharging through the root canal, have characteristics akin to the chronic long-bone abscesses described by Brodie.

c) *Pyorrhoea alveolaris;* the essential etiology here is unknown but when it progresses with pus formation it must be considered as an odontogenous factor.

d) *Fractured teeth* with retained root remnants becoming infected may assist in initiating an osteomyelitis process.

Osteomyelitis here, as in the frontal bone group, can be classified as a primary, an extension, or a hemolytic form.

Primary forms, implicating traumatic dental fracture with infection's inflammatory products, produces tension. Thrombi which form in the blood vessels impair circulation; this, in turn, deprives a given area of its nutrition and results in a regional necrosis. Trabeculae break down and inflammatory products may perforate the cortex and periosteum with sequestrum exfoliation.

Extension forms predominate in osteomyelitis of these bones. Extension takes place from any lesion of the overlying soft tissue whose commuting vascular thrombi may invade the bony structure. Staphylococcic chin infections typify this form. More direct extension accrues from infection complicating any dental manipulation or surgical procedure, thereby compromising the regional blood supply. An example of this type is any operative dental procedure which utilizes pressure in the presence of infection, to diffuse medication, effect anesthesia, fill root canals or plug extraction sockets for either hemorrhage or pain.

A history often elicited in this extension type of osteomyelitis is that a patient with a local infection seeks relief from the acute pain. Extraction is advised and is followed by further increase in pain with tenderness and swelling. This, in turn, may be succeeded by a chill, fever, lassitude and other signs of a general infection. (Some ninety days later a roentgenogram may show a sequestrum completed. Removal may be accomplished.)

Hematogenous forms of osteomyelitis of the jaw are often difficult to distinguish from extension types. Here where the lodgement of a blood-borne infection is at or in the root apices' vascular structure, resulting in periapical pathology,

it is impossible to differentiate between a hematogenous and extension periapical abscess. If the tooth is intact and trauma ruled out, then one apparently can assume its hematogenous origin. Another criterion is the culturing of identical bacteria from the primary focus and the metastatic lesion. Still further evidence of the hematogenous origin is seen in deep chronic jaw abscesses, infected impacted teeth and those cases associated with the acute eruptive fevers.

That osteomyelitis of the superior maxilla occurring in infants is of hematogenous origin has been shown by Wilensky.[1] Characterized by a loss of unerupted deciduous and permanent tooth buds, this entity has been erroneously ascribed as arising from a purulent maxillary sinusitis, a nasal infection or infection of the unerupted tooth buds per se. He believes osteomyelitis here no different from that occurring elsewhere.

It happens thus — the anterior and posterior dental arteries, coursing respectively in front of and behind the antrum anastomose in the alveolus, forming a closed arterial blood supply. Embarrassment of circulation here in the presence of the feeble periosteal vascular supply strangles circulation, resulting in sequestration of the impoverished alveolus along with its tooth bud structure. The fact that some affected buds situated in the impoverished area later erupt must be explained on the presence of an adequate collateral circulation. The rationale for the more frequent involvement of the superior than the inferior maxilla in this process may be explained on the larger size and more rigid construction of the superior maxilla, it being firmly attached to the skull. Thus, trauma becomes more poorly cushioned here. Vascularity is very rich about the unerupted teeth and tooth buds. Consequently, a receptive combination invites points of fixation in the vascular structure for the metastatic lesion's lodgement and devascularization occurs.

So we see, depending upon the locus of the thrombophlebitic lesion and the collateral circulation, one may have circulatory embarrassment with resultant pathology of the entire superior maxilla or any portion thereof. Abscesses form, fistulae develop through which sequestra and unerupted teeth and tooth buds may be expelled. Eighty per cent of mouth fistulae are at the alveolar arch of which fifty per cent are in the cuspid region where the pre-maxilla and maxilla fuse.

Early this bizarre picture presents a clinical course which necessitates its differentiation from ophthalmia neatorium, erysipelas, dachryocystitis, syphilis and tuberculosis.

Turning now to the symptoms and signs of osteomyelitis of the jaws in general, we note that they are derived from the regions involved, the associated lesions and the resultant complications, both local and general.

Locally pain is boring, worse reclining and greatest nocturnally. Relief accompanying cortical perforation is completed with periosteal escape of pus through soft tissue fistulae. In the loose facial subcutaneous tissue of the superior maxilla soft tissue destruction produces marked swelling.

Generally, symptoms are those occurring in any acute infection.

In the superior maxilla areas especially deprived of their circulation and which undergo abscess formation with subsequent sequestration are: the facial surface and adjacent alveolus. Here the vascular supply is common to the bone and overlying soft tissue resulting in much subcutaneous tissue death. Next, the maxillary sinus, due to circulatory failure in the anterior and posterior dental arteries, produces an abscess whose alveolar sequestra involves the angle formed by the floor and facial wall of the antrum.

Trauma in a suppurative maxillary sinusitis is a logical etiological factor in a complicating osteomyelitis. Why osteomyelitis does not occur more often is open to speculation.

Marshall[2] believes that a purulent maxillary sinusitis secondary to a periapical abscess is a thrombo-embolic lesion of the apical end arteries of the bicuspids or molar teeth.

In infants edema and abscesses with fistula and sequestra formation may result from lesions embarrassing vascular supply to the lateral aspect of the nose, the medial floor of the orbit and the palate.

In the mandible we see devascularization of bone at its best. Here with a central thrombosis and periosteal stripping extensive sequestra may occur. Here gravity encourages large accumulations of pus. The internal wall of the inferior maxillae is much thicker than the lateral, con-

sequently lesions most often burrow laterally. The attached soft tissue structure with its fascial planes derived from the vaginal fascia directs the purulent debris into neighboring potential spaces.

Thus we see that laterally abscesses may burrow into the buccal vestibule if high up, while if low down they may invade the overlying subcutaneous tissue. Third molar lesions may involve the jaw angle region or they may spread into the submaxillary triangle area, or even extend superficial to the vaginal fascia as low as the sterno-clavicular region. Ramus lesions pointing laterally may simulate a parotid abscess.

Medially from the body the mylohyoid directs the pus. If above it, the swelling may simulate a Ludwig's angina. If below it, the submaxillary triangle may contain it. If in the ramus, the internal pterygoid muscle fascia may direct it medially into the mouth or laterally along the posterior free border. Trismus characterizes pterygoid muscle involvement.

Complications accruing from osteomyelitis of these bones locally may further include, beside the above-mentioned soft-tissue abscesses, suppurative maxillary sinusitis, orbital abscess or an ankylosis of the temporomandibular joint. General sequelae may be a bacteremia or a septicemia. Complicating intracranial lesions, though rare, may include a meningitis, brain abscess or an encephalitis.

Roentgenograms are of little value early in maxillary osteomyelitis. After ten to fourteen days some decalcification may be demonstrated. They derive their greatest value in noting pathology previously present and in observing the progress of the lesion, particularly as regards sequestrum formation.

Wilensky[1] states that in the superior maxillae adjacent bones render distinction between normal and diseased bone difficult, whereas in the lower jaw good relief is obtained.

Treatment of osteomyelitic lesions here rather emphasizes conservatism, but when operative interference is indicated it should be boldly and efficiently instituted. In general, as Blair[3] aptly states, early drainage of the focus with the least possible operative trauma is desirable. Then it is well to wait until the virulence of the infection has subsided. This permits the dead bone to separate and sufficient new bone to form to maintain the continuity before attempting radical operative measures. Lastly, all fragments of dead bone must be removed without damaging protective granulations. Removal of overhanging edges permitting soft tissue to fill in is often facilitated by well-nourished skin flaps.

Prophylaxis should be directed primarily toward the prevention of dental caries and soft tissue infection. Enforcement of the rules of asepsis and obviation of unnecessary trauma should be stressed.

Extraction of teeth might be better approached if greater stress were laid upon the virulence of the infection and the resistance of the individual. That conservatism in treatment of acute dentro-alveolar lesions "pays off" is exemplified in reports from the literature.

SUMMARY

While adequate treatment of acute fulminating osteomyelitis of the frontal and its articulating bones requires prompt radical surgical interference, care of acute osteomyelitis of the maxillae calls for the employment of time to permit adequate localization to occur then the institution of proper operative measures to eradicate all evidence of residual pathology. Both often demand subsequent cosmetic surgery.

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DISCUSSION

Dr. Thomas C. Galloway, Evanston: Dr. Greenwood has given us such a thorough review that I shall not discuss most of this paper. I shall confine

myself to one consideration — spreading osteomyelitis in relation to anaerobic infection. The conventional idea of cranial osteomyelitis is not satisfactory in two respects. It does not explain why, in the first place, such infection arises so commonly from trivial as opposed to widespread operations. One practically never gets it in an external frontal or radical maxillary sinus operation, but does get it from simpler intranasal procedures, in which is provided a covered focus with an injured blood supply in which anaerobic organisms can flourish. In the second place, the idea of spreading thrombophlebitis does not well explain the spread from the maxillary and other compact facial bones.

I have been interested in Meleney's work in certain intractable spreading infections in soft tissues which he showed to be due to anaerobic or microaerophilic streptococci. By wide exposure and the use of zinc peroxide, he was able to control these. This type of infection seemed analagous to what we find in spreading cranial osteomyelitis, so that search was made for anaerobic streptococci in such cases. While routine culture methods seem usually to miss this organism, by very careful laboratory work in a series of some thirteen cases, we have been able to identify anaerobes in nearly every case. Williams et al had already made a similar demonstration. Also, in most of these cases the response after free exposure to zinc peroxide therapy has usually been striking.

Chemotherapy is not effective in the absence of oxygen and cannot be relied upon in these cases unless free exposure and oxygen are provided.

In my series[1] there were four clinical types.

If zinc peroxide is to be used, it must be a proper preparation, recently activated by heating at 140° C. for four hours, and it must be in contact with all pockets of infection. The wound must also be kept moist by vaseline or zinc oxide packs so that nascent oxygen is carried throughout the wound.

Dr. Glenn J. Greenwood: Since the presentation of this subject, successful treatment of osteomyelitis of the facial and cranial bones has been reported by H. L. Williams and D. R. Nichols; S. Iglauer; W. M. M. Kirby and V. E. Hepp; F. J. Putney; R. M. Colbert; W. E. Herrell.

1. T. C. Galloway — Infections with Anaerobic Streptococci.

Mass surveys of industrial workers, students, and army inductees have demonstrated quite clearly their usefulness in discovering unsuspected tuberculosis, but one large reservoir of tuberculous infection has thus far been almost entirely overlooked — those patients admitted to our general hospitals. Only a few hospitals and clinics in the country have adopted a program of routine roentgenographic examination of all patients, regardless of the nature of their complaint. Karl H. Pfuetze, M.D., Med. Dir. & Supt., Mineral Springs San., Cannon Falls, Minn.

OCULAR BRUCELLOSIS

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Brucellosis is a widespread common disease, frequently unrecognized clinically. The infection causes inflammatory iridocyclitis, chorioretinitis and neuroretinitis. The prevalence of brucellosis makes it particularly necessary to search for the kind of infection in every case with an inflammatory internal ocular disease of unknown etiology.

Definition. Brucellosis is a febrile septicemia infection with Brucella.

Brucellosis has been called many names depending upon locality and symptoms such as undulant, goat, dust, slow, continued, mountain, abortus, Mediterranean, Malta, Rock, Cyprus and Neapolitan fever. It has also been called phthisis and septicemia.

Etiology. Brucellosis is caused by three species of a micrococcus, called Brucella.

1. The caprine or goat species named Brucella melitensis, is usually most pathogenic for man. It is found in the udder, spleen and lymph nodes of goats producing interstitial mastitis and splenic lymphadenitis. Sheep and cows may become infected. It is spread to man by way of milk and cheese and by handling goats.

2. The porcine species or Brucella suis is the common virulent form in man. In 1935 in the United States the porcine species was isolated in 70 to 95 per cent of the typed cultures grown from blood of infected patients. The hog brucella has been found in the horse, cow, dog and chickens.

3. The bovine species or Brucella abortus is the least virulent species for man. Exposure to this species may result in no evidence of infection. It produces infectious abortion and chronic mastitis in cows. It may infect horses, sheep, deer, dogs and chickens but not hogs.

Epidemiology. Brucellosis is a world wide disease which is a great public health problem. Its occurrence in man, cattle, horses, hogs, sheep, goats and other domestic animals makes eradication difficult. It is now the most severe widespread disease among the cattle in the United States although the Department of Agriculture has reduced Bang's disease 50 per cent

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in the last ten years. Still the rate of the state and federal slaughter of cattle continues at a rate of 10,000 head a month in order to eliminate brucellosis in cattle. Porcine brucellosis is common in the hog raising states. In Iowa and California the hogs have a high rate of infection. The Middle West is a center of brucellosis infection in domestic animals.

In 1940 a minimum of 3358 human cases were reported to the U. S. Public Health Service. In the last ten years, 29,590 cases of brucellosis were reported in the United States. Many times that number of cases were undiscovered and unreported. Laboratory surveys indicate that about 10 per cent of the people may have had the infection. The number of cases in the Mid-West is increasing.

Transmission. The disease may be contracted by drinking raw milk from diseased goats or by ingestion of infected cheese, ice cream, milk and butter, or by contact with infected animals, and their urine, or by handling infected meat, fetuses and placentas. The infection may occur by the way of the skin and mucous membranes. The persons who tend to become infected are dairy men, butchers, vetinarians and bacteriologists. A high percentage of these people have a positive agglutination reaction and may show evidence of skin allergy. Perhaps the most common way of becoming infected is by the ingestion of raw milk. The porcine strain in milk is more virulent than the bovine. Milk heavily contaminated by the bovine strain may not give the infection.

The chief portal of entry of brucella is the gastrointestinal tract and skin. The incidence of the disease is highest among slaughterers, veterinarians, dairymen and farmers and lowest in children. Infections of infants is extremely rare.

Original Disease. Brucellosis or undulant fever is a subacute or chronic generalized infection with a gradual onset which is usually insidious. It is characterized by an irregular fever, by sweats, headaches, muscle and joint pains, weakness, loss of weight and nervous disturbances. The patients may come to the ophthalmologists for glasses to relieve the headache. The disease has so many varied symptoms that the diagnosis may be missed or mistaken for bronchitis, malaria, tuberculosis, influenza, typhoid fever, rheumatic fever, neurasthenia and other diseases. No other disease has so many clinical manifestations. There is a great tendency for relapses which last for weeks or years.

Ocular Disease. Ocular disease attributed to brucellosis is relatively rare. The large number of patients with unrecognizable brucellosis and the number with undiagnosed inflammatory ocular diseases lead one to believe that ocular brucellosis is more common than is realized.

Ocular brucellosis usually affects the eye internally and not externally. There is reason to believe that persons who show a high sensitivity and a high allergin response of their skin will have a conjunctivitis and keratitis when exposed to brucella antigen. They may have no symptoms of brucellosis. Such persons are veterinarians, butchers and farmers. Conjunctivitis and keratitis of brucellosis is difficult to diagnose unless the patient has a severe infection or has inoculated his conjunctiva.

Iridocyclitis, uveitis and chorioretinitis are the usual ocular diseases accompanying brucellosis. The iridocyclitis is chronic and may be recurrent. The nodular form of iritis may predominate or an exudative iridocyclitis of low degree of activity may be present. The iritis may simulate a tuberculosis and syphilitic disease. In the more common eye disease is a chorio-retinitis. Mild chronic infection may give an iridocyclitis with or without a slight central retinitis or it may give a central macular lesion of the retina. If the infection is subacute or chronic chorioretinitis may arise. In the acute severe form the systemic disease neuroretinitis may be the only ocular lesion discovered. In meningitis, neuroretinitis, papilledema, external ocular muscle paralyses may be observed. Rarely the process ends in Phthisis bulbi.

Diagnosis of Brucellosis. An interested and experienced internist and bacteriologist are a great help in the determination of the diagnosis of brucellosis. The examiner should have a good knowledge of the disease before the examination of the patient. No disease has more varied and diverse clinical manifestations.

1. *Clinical Examination.* The history of exposure to brucella is usually easily obtainable in case of acute infection. In the mild case of long duration the source of the contagion may not be found. The patient may have drunk in-

fected raw milk in summer camps or roadside stands, visited farms, or eaten cheese and may have forgotten about it. The symptoms are so varied that only prolonged questioning will give satisfactory answers. A review of the systems is perhaps the best method of examination. The physical examination of the patients generally give little or no positive information.

2. *Laboratory Diagnosis.* The diagnosis of brucellosis is mainly made on laboratory tests.

The only sure method of diagnosis is by the isolation of the organism from the blood. The blood should be diluted and then cultured in an atmosphere with a low oxygen tension. The incidence of positive blood cultures is low in patients with disease even in the acute lethal form.

Inoculation of guinea pigs with blood is a time consuming procedure. The agglutination of the blood of the guinea pig may be done in two weeks and the animal killed and tissues sectioned after one month. The percentage of guinea pigs acquiring the infection is low. There is also a great danger of laboratory technicians getting the infection in handling cultures or animals.

The isolation of organisms from the urine and feces are not done as the procedure is difficult and usually unsuccessful.

In general, procedures for the isolation of Brucella are not satisfactory.

The agglutination test on the blood is a simple procedure. Various dilutions of blood serum are mixed with standard vaccine of the three species of Brucella. A positive reaction with certain restrictions indicates a past or present infection with Brucella. A negative reaction may occur in brucellosis. In chronic brucellosis negative reactions are quite common. Fever from any sickness may produce false positives or raise the agglutination titer. Tularemia tends to give false positives. Agglutination tests repeated at intervals are more helpful diagnostically than one test.

The intradermal skin test with brucella vaccine either as single, triple killed cultures or with brucellergin should be done after the agglutination test or false positives may result. Positive skin tests also occur in patients who acquire an immunity to a virulent Brucella. Pork packers, dairymen, farmers and others in endemic areas exposed to raw milk or other sources of Brucella are in this group of positive reactions.

Another test is the determination of the degree of phagocytosis of a suspension of Brucella organism under standard conditions by white cells of the patient. This test is the least reliable test but it may give some indication whether the Brucella infection is present or past. According to Huddleson's interpretation the opsonocytophagic power of the blood is low during the active infective phase of the disease and becomes marked after recovery. On this basis, it is considered that patients have developed immunity to Brucella if 60 per cent or more of the polymorphonuclear leucocytes show marked phagocytosis. If as many as 40 per cent of the leucocytes show moderate to marked phagocytosis the patient may be infected and has not yet developed any immunity or he may be uninfected.

A blood count usually shows a leucopenia in acute brucellosis. In chronic brucellosis a leucopenia may not be present. Evidence of an active lymphocytogenesis is usually found.

The therapeutic test of injection of Brucella vaccine subcutaneously may give a clue to the diagnosis.

A patient may have active severe brucellosis with negative skin and agglutination tests, negative blood and feces culture and negative guinea pig test. Each patient must be considered as a clinical diagnostic case.

The disease usually can be differentiated from ocular tuberculosis, sarcoid, toxoplasmosis, trichiasis, tularemia, lymphogranuloma venereum, typhus and spotted fevers.

Tuberculosis is diagnosed by means of lymph gland biopsy. A part of the gland is used for sectioning and study, a part for inoculation into a guinea pig.

Sarcoid is diagnosed by the same method. X-rays of the chest and bones are also taken.

The diagnosis of toxoplasmosis is determined by serum neutralization tests on a rabbit.

Agglutinations are done for typhoid and tularemia.

Skin tests are performed for trichiniasis, tularemia and lymphogranuloma venereum. A positive skin or agglutination test for tularemia

acquires a complete review of the case because of the danger of false positives.

Typhus and tick fevers are checked by the B. proteus OX19 and OX2 agglutinations.

TREATMENT

The ocular disease is treated locally. For the general treatment of the ocular disease intravenous injection of typhoid vaccine to produce a fever of 103° to 105° F. may be used. A vaccine of brucella or brucellergin may be used.

Sulfa drugs have not been proven to be useful. Fouadin which was apparently used successfully in Malta has not been tried on ocular cases. The use of convalescent serum apparently has a place in treatment. There are no reports on the use of penicillin in brucellosis. The peculiar nature of the disease with its remissions makes the valuation of any particular therapy extremely difficult.

DISCUSSION

Dr. S. J. Meyer, Chicago: This paper is difficult to discuss for the reason that the essayist has been very thorough in his presentation, but to ophthalmologists it presents a very difficult problem. In the first place, the lesions that are found in this disease, the ocular lesions, do not differ from those we find in several other diseases. Therefore we are sometimes at a loss to designate Brucellosis as a causative factor. You will grant that there is no difference in the appearance of the conjunctivitis or the uveitis. It may be the same as seen in other causative factors, also the retinal changes. Therefore it simmers down to the fact that you must have an internist on the job who knows something about Brucellosis.

In our own practice we have had four cases; we have probably missed many more, not through our fault from the eye standpoint, but because we do not sometimes have a medical man who knows much about the disease. The laboratory in the average hospital fails to help confirm the diagnosis. We have had many cases probably incorrectly diagnosed simply because they were not worked up correctly. It is true that in certain centers where patients come in from the country, you will find a much larger percentage than in Chicago. On the other hand, you must have the cooperation of laboratory technicians and physicians who understand the problem, in order to confirm the diagnosis.

Dr. A. C. Krause, Chicago (closing): There is quite a large number of cases of brucellosis infection of the eyes. Sometimes you wonder whether it is worth while to spend so much time on these patients. It requires an immense amount of diagnostic work. You are not always able to trace the history to prove the patient has brucellosis. We feel that these four cases which are presented are positive and not presumptive cases. We have a large number of cases in which the presumptive diagnosis is ocular brucellosis. All the tests and clinical findings are relative and the whole diagnosis must be true, consistant with the data. Strangely enough usually the ophthalmologist must see that the diagnostic work is done. The total number of cases is probably very large. Allan Woods thought he found about 7 per cent of chronic uveitis to be brucellosis. There were about 16 or 17 cases and all but one were presumptive cases of brucellosis. These cases were diagnosed in an institution where they have very elaborate equipment, plenty of help and full time bacteriologists. The main thing to remember is that brucellosis is very common and that the type that affects the eyes is perhaps the porcine rather than the bovine type. There are no particular eye signs to aid in diagnosis. All other eye infections have to be ruled out, which makes it very difficult. The best type of vaccine is made by the Health Department of the State of New York. We have had some of this vaccine which we are using on the two patients whose pictures I showed.

NEW TYPE OF OPERATION SAVES LIVES OF THREE 'BLUE' BABIES

Children Born With Malformed Hearts No Longer Considered Beyond Reach of Surgical Aid, Doctors State

A new type of operation, apparently the first of its kind in medical history, has saved the lives of 3 "blue" babies, according to a report in the May 19 issue of *The Journal of the American Medical Association*. Heretofore, a "blue" baby with heart disease present at birth was considered beyond the reach of surgical aid.

Alfred Blalock, M.D., Professor and Director of Surgery, and Helen B. Taussig, M.D., Associate in Pediatrics, both of Johns Hopkins Hospital, term the operations "sufficiently encouraging to warrant an early report."

"During the past three months," the doctors wrote in *The Journal*, "we have operated on 3 children . . . and each appears to be greatly benefited."

In "blue" babies, a malformed heart causes insufficient oxygen in the blood, resulting in a bluish color to the lips and skin. This deficiency is due to the failure of the blood to obtain adequate oxygen as it flows through the lungs.

The operations were undertaken, the two physicians said, "with the conviction that even though the structure of the heart was grossly abnormal, in many instances it might be possible to alter the course of the circulation in such a manner as to lessen the cyanosis and the resultant disability."

The operation is performed by entering the chest cavity. One of the pulmonary arteries is joined to a large artery leading away from the heart. The greater pressure in this blood vessel forces the blood to flow into the pulmonary

artery and on through the lung. In all 3 cases, the pulmonary artery was too small to allow adequate amounts of blood to get through to the lung. Although the three operations differed in some details, in each instance the surgery greatly increased the volume of blood which reached the lungs, and hence the amount of blood which received oxygen.

The doctors state that the operation is indicated only when there is clinical and x-ray evidence of a decrease in the flow of blood to the lungs.

The first operation was performed on a baby girl, who was too small and weak to permit laboratory studies. She couldn't sit alone, she refused feedings, and she had lost weight. After surgery, her improvement was regarded as "remarkable" by the doctors. Her appetite improved, she gained weight, and is now learning to walk.

The second patient, a 9 year old girl, was so severely incapacitated that she could not walk 30 feet without panting. Two and a half weeks after the operation, she walked 60 feet, rested a short time and walked another 60 feet back to her room.

The third operation was performed on a 7 year old boy. Before surgery, his lips were a dark purple and the child was unable to take even a few steps. "The day after the operation," the doctors said, "he lay in an oxygen tent with cherry red lips. When taken out of the tent his color remained good. His disposition changed from that of a miserable whining child to a happy smiling boy. We were slow to permit him to walk because of a persistent low grade fever, but at the end of the third postoperative week, he could walk 40 feet without panting. He was then allowed to be up for several hours each day and has walked and played in his room."

SEES RISING DEMAND FOR WHOLE BLOOD FOR USE IN MILITARY MEDICINE

Preserved whole blood of group O may be employed by military medicine in the same manner as plasma, administering it in foxholes, on ambulances, aboard ship or in airplanes, Elmer L. DeGowin, M.D., of Iowa City, declares in *The Journal of the American Medical Association* for April 21. However, the complicated problems of equipment, transportation and supply presented by military situations must first be met and overcome.

Dr. DeGowin, in reviewing the importance of blood plasma in civilian and military medicine, stresses the fact that the administration of plasma possessed advantages over whole blood in the greater stability of plasma or serum during storage and in the fact that tests for compatibility were unnecessary before transfusion. However, where both whole blood and blood sufficient quantities, he predicts the rising demand for whole blood in transfusions.

"We are told," he says, "that in military medicine over 90 per cent of the cases of secondary shock are caused by hemorrhage. This is preferably treated by transfusions of whole blood, but plasma may be given successfully in all but the more severe cases. In the correction of preoperative anemia whole blood is indispensable. Transfusions of plasma or serum are indicated in burns, although patients with severe burns frequently develop anemia requiring whole blood transfusions after the stage of shock has been passed. . . .

"The transfusion of fresh whole blood is not practical in many military situations. The time required for collection of blood often coincides with that when the medical personnel is most occupied in the surgical procedures demanded in emergencies. Lack of laboratory personnel and equipment may make difficult or preclude entirely the use of fresh blood. Lastly, the procurement of blood donors not only may be time consuming but may actually be limited by the circumstances. . . ."

Despite the fact that thousands of transfusions of group O blood have been given without an alarming incidence of untoward reactions, Dr. DeGowin says that the point is still debated. However, he continues, "The advantages of such a procedure in military medicine are immense. The group of the blood can be carefully determined at the point of collection, where well trained technicians can perform the tests. At the point of administration the universal blood may then be employed as indiscriminately as plasma, without the delay, equipment or personnel required for laboratory tests. . . .

"In addition to the problems encountered in supplying plasma to medical installations, the military organization faces certain additional problems in handling preserved blood. Collecting depots must be established far enough in the rear to insure an adequate supply of donors. Facilities for accurate blood grouping must be located at the points of collection. Refrigeration must be provided at collecting depots, during transportation and at dispersal points. Accurately timed and frequent transportation facilities between collection depots and dispersal points must be maintained with the necessary communications for activating them. These are not insurmountable problems for a military organization. They have been solved in the British and Russian armies and they are now being solved in the American army. . . ."

IMPORTANT

Send changes of address to 30 N. Michigan Ave., Chicago 2, Illinois, enclosing label from a copy showing your old address. Changes received after the 1st of the month will not go into effect until the following month.

Physical Medicine Abstracts

John S. Coulter, M.D.

RECONDITIONING IN CIVILIAN HOSPITALS

Henry B. Gwynn, M.D., F.A.C.P.
Major, Medical Corps, Reconditioning Consultants Division, Office of The Surgeon General of the United States Army
In MEDICAL ANNALS OF THE DISTRICT OF COLUMBIA, 14;1;16
January, 1945

Physical medicine is only beginning to come into its own. The Baruch Committee on Physical Medicine and other such groups are stimulating research and correlating scientific knowledge on this subject in order to get it firmly established as a fundamental tool of medical therapy. Too often physical medicine is looked upon as merely an orthopedic therapy aid and its role in other surgical, medical and mental conditions completely overlooked. This condition will only be corrected by improvement of instruction in physical medicine in medical schools. It sufficies to state here that physical medicine is a most important section of reconditioning and a large percentage of patients in a general hospital would benefit by scientifically prescribed massage and the use of ultra-violet rays, infra-red rays, diathermy, whirlpool baths, faradic and galvanic stimulation, and other such measures. A most important feature of a physical therapy department should be the remedial gymnasium equipped with medicine balls, skipping ropes, weights, pulleys, shoulder wheels, horizontal ladders, rowing machines, Indian clubs and stall bars.

Occupational therapy has long been used in mental hospitals, but few general hospitals have established departments.

MODIFIED TREATMENT FOR FRACTURE OF THE HEAD OF THE RADIUS

Captain R. W. Postlethwait,
Medical Corps, Army of the United States
In THE AMERICAN JOURNAL OF SURGERY, 67;1;80
January, 1945

An accurate determination of the time required for complete recovery is very difficult in these cases, in both military and civilian patients. Nevertheless, with joint aspiration, procaine injection and immediate active motion, the patient is rarely absent from duty more than three to five weeks and may not lose even one full day. This is in marked contrast to those treated by immobilization, when the soldier may need seven to ten weeks' treatment before returning to duty.

SUMMARY

Fractures of the head of the radius which do not show marked displacement will recover more promptly and completely if treated by joint aspiration, procaine injection into the joint and immediate active motion. The aspiration of the hemarthrosis and the injection of procaine will produce relief of the severe pain which occurs soon after injury, and will permit earlier increase in the range of motion.

THE TREATMENT OF FRACTURES OF THE HUMERUS WITH THE HANGING CAST

R. Beverly Raney, M.D., Durham
In THE NORTH CAROLINA MEDICAL JOURNAL, 6;2;91
February, 1945

For about two years we have treated almost all

fractures of the humerus above the supracondylar level with the hanging cast and shoulder exercises.

Active exercises form an essential part of the hanging cast treatment. The patient is urged to carry these out twice daily, beginning in a gentle fashion immediately after application of the cast, and continuing more vigorously until full function of the extremity is restored. The shoulder exercises are of two types, circumduction and rotation, and are carried out with the patient standing and leaning forward. In doing the circumduction exercise, the patient swings the entire extremity around in as large a circle as he can make. In doing the rotation exercise, he turns the extremity about the longitudinal axis of the humerus through as great an angle as possible. After removal of the cast — at a period varying widely from about two to about twelve weeks after its application — exercise of the shoulder in other positions is added, as are exercises of the elbow and wrist.

THE ABUSE OF REST AS A THERAPEUTIC AGENT

In PROCEEDINGS OF THE STAFF MEETINGS OF THE MAYO CLINIC, 20;6;91
March 21, 1945

F. H. Krusen, M.D., Section on Physical Medicine: Recently there has been renewed interest on the part of the medical profession, in problems of rest versus activty in the treatment of the sick. Two events have contributed toward this renewal of interest. One was the presentation of a symposium on the abuse of rest at the last meeting of the American Medical Association. The other event was the establishment in our Army hospitals of convalescent and reconditioning programs which utilize physical and mental activities for patients more fully than has ever been the case in civilian hospitals.

In the past certain great medical leaders have stressed, perhaps unduly, the importance of rest as a therapeutic measure. Three vigorous advocates of rest as a form of therapy stand out in the memory of present-day physicians. They are Weir Mitchell, Hugh Owen Thomas and Allen K. Krause.

The doubts which are now being expressed concerning the wisdom of blind and often unreasoning adoption of unlimited amounts of rest in therapy, simply because of the support given to rest therapy by great physicians of a less enlightened age, call for a careful review of our modern knowledge concerning this subject.

Blind following of the great physicians of the past has always been one of the weaknesses of the medical profession. Yet in guarding against this tendency we must not hurriedly cast aside proved and valuable methods of therapy.

Practically every patient presents problems of a physical and of a mental nature — problems of the soma and of the psyche.

Our Army physicians have realized the importance of rapid restoration of sick and disabled soldiers both physically and mentally. Their newly developed convalescent and reconditioning programs bid fair to revolutionize the concepts of physical and mental rest and activity now extant in civilian hospitals.

THE SCALENUS ANTICUS SYNDROME WITH AND WITHOUT CERVICAL RIB

In PROCEEDINGS OF THE STAFF MEETINGS OF THE MAYO CLINIC, 20;5;69
March 7, 1945

J. G. Love, M.D., M.S. in Surgery, Section on Neurosurgery: Cervical ribs are of infrequent occurrence.

All patients who have cervical ribs do not require treatment. In fact, many persons have cervical ribs and never know it. Others learn the fact for the first time when a roentgenogram of the thorax or neck is made for some entirely unrelated reason. Patients with mild symptoms often are benefited by conservative measures, such as lessening the load on the involved shoulder girdle, application of heat locally and sleeping with hands above the head or prone with the arms over the sides of a narrow bed. Others require analgesic drugs such as acetylsalicylic acid.

When it has been determined that more radical measures are necessary for relief, scalenotomy with or without removal of the rib is indicated. The anterior approach is the operation of choice even if the rib is to be resected.

Industrial Health

Committee On Industrial Health — Frederick W. Slobe, Chm., 2024 South Western Ave., Chicago, Frank P. Hammond, H. A. Vonachen, R. I. Barickman, C. O. Sappington, Milton H. Kronenberg.

STATE REGULATIONS FOR INDUSTRIAL HOUSEKEEPING

New regulations relative to industrial housekeeping became effective on September 1st, 1944. These regulations cover housekeeping, ventilation, lighting, water supply for human consumption, toilet rooms, wash and locker rooms, rest rooms for women, and lunch rooms. These requirements are known as the Part "G" Rules and Regulations and copies may be had by writing to Mr. Louis J. Meyer, Chief State Factory Inspector, Division of Labor, 205 West Wacker Drive, Chicago 6, Illinois.

THE STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA HOLD ANNUAL MEETING ON APRIL 13TH[1]

At the meeting of the State and Provincial Health Authorities of North America on April 13th, Dr. Townsend, Chief of the Industrial Hygiene Division, U. S. Public Health Service, indicated that reconversion would not result in a diminution of industrial health problems but would probably result in an actual increase in the same. For this reason, he felt that the activities and services of the Governmental Industrial Hygiene Division in their relationship to State departments should be augmented, especially as regards the smaller plants, to include health education activities, the better detection and control of occupational hazards, better training of professional personnel in industrial medicine and hygiene, further development of industrial nursing, industrial dentistry, and mental health problems. Dr. Townsend hoped that appropriate legislation would be forthcoming and that a national advisory commission on industrial health would be appointed to include representation by management, the medical profession, public health departments, and labor.

In conformity with these plans, the following resolution was accepted at the above meeting:

"Whereas industrial hygiene is an important part of public health activities which not only prevents the adverse effect of certain industrial environment upon the working population, but also, because of the close association with this large group which industrial hygiene activities entail, presents an unequaled opportunity to bring to this important group of our population the various facilities provided by public health authorities, and

"Whereas there should be no diminution in industrial hygiene work after the war, but that there should be an increase in this phase of public health work, and

"Whereas state aid for industrial hygiene activities is now provided through funds furnished by Title VI and some Lend-Lease activities, which it is expected will be considerably decreased after the war,

"It is therefore Resolved by the Association of State and Territorial Health Officers that an appropriation for state aid for industrial hygiene activities be provided through the Industrial Hygiene Division of the U. S. Public Health Service by direct Congressional appropriation."

1. Abstracted from the "Industrial Hygiene News Letter", Vol. 5, No. 4, April 1945.

DEATH RATE OF WOMEN REDUCED[2]

Statistics released by the Metropolitan Life Insurance Company revealed that, between 1939 and 1944, the death rate from all causes for insured women was reduced by one-sixth. This company credits part of this reduction to the improved industrial hygiene and safety practices in industry. The great influx of women workers into industry during this period resulted in a program of safer work practices for women, health education, supervision of proper work clothing, protective devices, restrictions against heavy lifting, supervision of pregnant women employed and control of environmental hazards.

Dr. Anna M. Baetjer of the Johns Hopkins School of Hygiene and Public Health, discussed the health of women in industry at a sectional meeting of the American Industrial Hygiene Association in Washington on February 27th. She stated that women have only from 50 to 60% of the working strength of men and that the selection by industry of large women to do heavy work is fundamentally unsound because there is little correlation between their size and strength. Since the average woman worker has many household duties and burdens, she is predisposed to fatigue. Dr. Baetjer is of the opinion that women have no special susceptibility to stress and strain injuries but that the increased incidence of these is probably due to unfamiliarity with the methods and processes of industry. She questions whether women on the job are more emotionally unstable than men and also that women are more susceptible to toxic substances or to industrial dermatoses. However, pregnant women should not be exposed to toxic chemical substances, especially lead, which has a deleterious effect on the reproductive organs. Although the incidence of sickness is higher among women, the average duration of sick leave is less. Middle-aged women seem to have the best record as regards short-term absenteeism due to sickness.

INDUSTRIAL OPHTHALMOLOGY[3]

Columbia University inaugurated a course in industrial ophthalmology on May 7th. This was done in cooperation with the National Society for the Prevention of Blindness.

Sight saving programs in industry are being augmented because of the many older workers with diminished vision employed during the war and the many new employees who are unfamiliar with modern machinery and tools. Job analyses for visual requirements are conducted in some plants in connection with plant safety methods. Faulty vision or poor illumination are believed to cause about 25% of accidents in industry.

SILVER SOLDERING AND CADMIUM[4]

A number of workers in a silver manufacturing plant in the Kansas City area, complained of respiratory irritation leading to an investigation of the fumes given off during the soldering process. Fluorides were first suspected, but it was found that air samples showed the concentration of fluorides to be at a safe level. Further testing by means of the electrostatic precipitator impinger method, showed a yellowish color to the smoke and fumes collected which was proved to be due to cadmium. Analysis of various solder samples revealed, in some instances, a rather high cadmium content. The hazard was minimized by installing suitable exhaust ventilation to collect fumes at the point of origin and recommendations were made to develop a satisfactory silver solder which would not contain cadmium.

RECONDITIONING PROGRAM IN ARMY HOSPITALS

Fundamentally, physical and occupational therapy for war and industrial casualties are based on similar concepts and purposes. A future trend in general hospitals, no doubt, will be toward a development of departments adequately staffed to carry out the necessary procedures.

The following abstracts are of interest in this connection:

RECONDITIONING PROGRAM IN ARMY HOSPITALS. W.E. Barton, Occup. Therapy 23:174 (Aug.) 1944*

Barton states that the reconditioning program in Army hospitals is designed to return more men to duty physically and mentally fit. It seeks to achieve this by

2. Abstracted from the "Industrial Hygiene News Letter", Vol. 5, No. 4, April 1945 and Vol. 5, No. 3, March 1945.

3. Abstracted from the "Industrial Hygiene News Letter", Vol. 5, No. 4, April 1945.

4. Abstracted from the "Industrial Hygiene News Letter", Vol. 5, No. 3, March 1945.

a planned program of progressive physical training, educational reconditioning, occupational therapy and recreation.

Occupational therapy plays an important role in the reconditioning program. The ambulant convalescent hospital patient is the chief concern of the therapeutist. Under medical direction in the orthopedic shop, interesting work activities extend the gains in function and strength of damaged parts that received attention up to this point in physical therapy and in the remedial gymnasium. In the shop for neurophyschiatric patients, occupational therapy prevents morbid introspection with somatic reverberations of emotional upheaval, or through creative achievements reestablishes a sense of personal worth or assists in the assimilation of the individual into a social group.

Through the cooperation of the American Red Cross, volunteer assistants are procured with handicraft experience who under the supervision of the occupational therapeutist may bring opportunities for diversional work activity and even a limited amount of therapeutic occupation to the bed patient. The scarcity of trained workers makes this arrangement imperative.

In the advanced reconditioning section, gardening, work projects indoors and on the grounds, carpentry and the handicraft shop offers physical conditioning as well as hobby outlets.

The establishment of a position for an occupational therapeutist in the reconditioning division in the office of the service command surgeon in each of the various service commands throughout the country should make it possible to exercise field supervision over the program as it operates in hospitals. This has been possible only in a limited way up to the present time.

At the two Army hospitals designated for the care of the blind, occupational therapeutists are doing an important job. They aid in the development of perceptual skills. What is even more important, the blind regain self confidence through the knowledge that they can still perform useful work.

In the five hospitals designated as amputation centers, the occupational therapeutists have undertaken the task of rehabilitation of men with amputations of an arm. Instruction includes the retraining of the remaining extremity to perform added function and the full use of a prosthesis.

Work in arts and crafts is provided as a section of the recreational program. Proof of the interest of patients in craft work is the fact that many times men are found busily engaged in the ward, even in the late evening, in making belts, yarn purses or leather billfolds.

Convalescent patients demonstrate an interest in activities many of which the graduate in occupational therapy would be unable to direct, even if one were available. These interests include radio construction, repair and code practice, motor mechanics, gasoline and diesel engine repair, metal and wood shop work with machine operations, printing and photography. The convalescent patient with talent in art or sculpture seeks expert instruction. Fly tying, model plane and model tank building and work with plastics and with leather are also popular.

The experimental introduction into the hospital of industrial processes, such as pioneered by the Navy at St. Albans, is deserving of careful study. In this method, the manufacturer brings an industrial process to the hospital and supplies the equipment, materials, instruction and supervision. The company must enter into an individual agreement with the patient for compensation.

OCCUPATIONAL THERAPY IN ORTHOPEDIC WAR INJURIES: S. T. Snedecor, Occup. Therapy 23:179 (Aug.) 1944.*

Snedecor points out that after a military surgical operation there is special need for rehabilitation treatments and exercises which will aid in the restoration of function to the limb. There is a place for occupational therapy in this retraining program for injured arms and legs.

At Valley Forge General Hospital injuries to the arms and legs cause by far the greatest proportion of admissions, and so the orthopedic service is always the largest. To back up orthopedic surgery and get real functional results, completely equipped departments of physical and of occupational therapy are necessary. Furthermore, the two should be closely integrated both as to equipment and as to personnel. More than that, the patients could also profit from recreational craft work which would fill in more of their day. Such craft work would be especially valuable if there were co-ordination between the strictly therapeutic work and the recreational phase. For example, in the morning a man with an injured hand would spend an hour at cabinet making under strict supervision. In the afternoon he would likely be willing to spend a couple of more hours building a model airplane, the most popular of all craft work. Here an intelligent occupational therapeutist would follow up and instruct him how to get the most benefit out of this recreational work.

Superior personnel is the primary prerequisite for a good department. Occupational therapy aides not only must be well trained but must have a high order of intelligence and adaptability because they have many problems to meet. Injuries are not standardized. The bullets and shell fragments strike the arms and legs in every conceivable location. A great deal of time and thought must be spent with these men to get their fingers working in the right way — to make them use the thumb so that opponent action will develop or to stress flexion at the metacarpophalangeal joints of the last two fingers.

At Valley Forge General Hospital there is available the physical plant and the competent personnel for a complete rehabilitation program. Satisfactory results are obtained with reconstructive surgery.

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*War Medicine, Vol. 6, No. 5, Nov. 1944.

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

★ WAR SERVICE ACTIVITIES ★

CHAMPAIGN

Major John R. Powell has been retired from the Army and is now living in Champaign.

COOK

Major S. W. Simon, former resident physician and surgeon in Chicago, will soon return to the United States after completing a 29 months tour of duty in the Mediterranean Theater of Operations. He has been overseas since December 1942, in Palestine, Egypt, Tunisia, Algeria, Libya, Sicily and Italy. Early last January Major Simon received the coveted Bronze Star Medal after he led his medical detachment in stamping out a civilian smallpox epidemic before it reached the thousands of combat airmen of the 15th Air Force who were on duty at nearby airfields. As a result of his extensive overseas duty he is now also authorized to wear the American Defense ribbon, and the European-African-Middle East ribbon with four campaign stars, in addition to his flight surgeon's wings.

Comdr. J. Roscoe J. Miller, dean of Northwestern University Medical School was recently appointed medical director of the Northwestern railway. He will assume his duties with the railroad upon completion of his navy assignment.

The Surgeon General's office has announced the promotion from Major to Lt. Colonel of Arthur E. Diggs of Chicago and A. A. Bolotin of Chicago and Hall I. Sippy of LaGrange.

Lt. Comdr. Louis B. Newman, head of the Department of Physical Medicine at the Seattle Naval Hospital was recently appointed by the American Congress of Physical Medicine as the Navy member of the Army, Navy, Public Health and Veteran's Administration. Dr. Newman is the only member of the Committee. His appointment was approved by Rear Admiral Ross T. McIntire, Surgeon General.

Among the Chicago Doctors participating in the medical activities at Iwo Jima were Comdr. James E. Lebensohn and Lt. Comdr. Chas. A. Fleischner.

Captain Harry Leventhal was awarded the bronze star for meritorious services against enemy action. Capt. Leventhal is attached to the 4th Armored Division of the Third Army under General Patton.

Major Daniel Syndacker is with the group of medical officers who set up a hospital on a site abandoned by Jap medics on Mindanao Isle, where a large medical dump was discovered. Supplies of saline solution were put to work immediately on the few heat exhaustion cases which had developed in th Mindanao campaign. Major Snydacker is chief of the eye, ear, nose and throat section of the 99th Evacuation Hospital 8th Army Unit.

Major Alex S. Tulsky was recently awarded the Bronze Star for meritorious service during the period June 26th, 1944 to November 1944 in France.

Lieut. Col. James H. Wallace passed through Chicago recently. He has been in the South Pacific for some time and reports in Washington shortly.

The following army promotions of physicians have just been announced; from Major to Lieut. Colonel; Ralph Fouser, Louis River and Maurice Lev.

Lieut. Col. W. J. Potts has recently been relieved as chief of the surgical section of the 25th Evacuation Hospital serving in the New He-

brides. Lt. Col. Robert F. Sharer has been appointed in his place. Col. Potts has been appointed as consulting surgeon to the South Pacific area.

The Silver Star Medal was recently awarded to Lieut. (jg) Edgar M. Rector, formerly of Ann Arbor, Mich., son of Doctor Frank L. Rector of Chicago, "for conspicuous gallantry and intrepidity in action against the enemy on the islands of Saipan and Tinian, Marianas group, while serving as a medical officer with an infantry battalion. On July 3, 1944, when the entire front line was forced to withdraw because of heavy enemy fire, Lieutenant (junior grade) Rector remained forward of our lines until late at night, administering first aid and plasma to the wounded until they could be evacuated. Later on Tinian, despite a painful wound in his hand, he moved forward under fire to aid a wounded Marine who could not be evacuated. Lieutenant (junior grade) Rector received a serious chest wound at this time. His outstanding courage and disregard for his own safety were in keeping with the highest traditions of the United States Naval Reserve." Dr. Rector has also been the recipient of the Silver Star, the Purple Heart and a Presidential Unit citation. He graduated from Harvard Medical School, Boston, in 1941 and entered the service Nov. 1, 1943.

Lieut. Paul Ashley, formerly of Chicago Heights, Ill., was recently awarded the Bronze Star "for distinguishing himself by heroic and meritorious achievement in connection with operations against the enemy as division medical officer aboard an aircraft carrier on Nov. 25, 1944 off the coast of the Philippines while this vessel was under attack by Japanese aircraft. During and after a heavy aerial assault by Japanese aircraft he displayed exceptional ability and untiring devotion to duty which contributed greatly to the recovery of many wounded. His relentless zeal in the execution of his duties was exemplary and at all times in keeping with the highest traditions of the United States Naval Service." Dr. Ashley graduated from Rush Medical College, Chicago, in 1937 and entered the service Nov. 30, 1942.

Lieut. (jg) Francis Ambrose Lagorio Jr., formerly of Chicago and now battalion surgeon of the 7th Marines, 1st Division, has been commended for heroism in the bitter fighting on Peleliu Island last September and October by the Marines' commanding officer, Lieut. Gen. H. M. Smith. The citation states that "Lieutenant Lagorio organized and directed stretcher bearers to the front and to the rear. . . . He . . . contributed greatly to the ultimate combat efficiency of the battalion." Dr. Lagorio graduated from Loyola University School of Medicine, Chicago, in 1943 and entered the service early in 1944.

GRUNDY

Jackson D. Beatty of Morris has been promoted from Major to Lt. Colonel according to word received from the Surgeon General's office.

KANE

The Surgeon General's office announces the promotion from Major to Lt. Colonel of Walter L. Carleton of Elgin and George Plain of Aurora.

LAKE

Lt. Comdr. Aaron A. Topcik, Waukegan, Ill., attached to the 6th marine division, had set up his hospital in an abandoned seed mill when the first patient, who had been hit by rifle fire, was brought in. An operation was begun. A sudden blast near-by shook the old mill and plaster fell on the operating table. "We protected the patient with our bodies and then moved into another corner," Topcik said. "Everything turned out well." The 40 year old officer, who was a physician in Waukegan for eight years, insists his hospital be close to the front lines to avoid delays. In 30 hours, within a mile of the front, Topcik and two assistants performed 12 operations and attended 60 patients.

MARSHALL

Dr. Lindley L. Bufkin of Wenona, now stationed in Belgium as a surgeon with the U. S. Army, has written a resume of his injuries and his present physical condition, as follows:

"After several months of rather 'hard-sledding' I now have a rather desirable 'set-up.' I am in excellent physical condition. The old heart is o.k. and I have 100% function and no pains anymore in my right arm. I get around without a limp, however I don't think I could do any more of those 25-mile hikes with a full pack. So far the score has been: (1) injured knee; (2) paralyzed arm three months, pains, nine months, 100% now; (3) skull fracture; (4) brain concussion; (5) ear partly torn off."

TAZEWELL

Major Howard A. Lowy, formerly of Creve Coeur, Ill., and now serving as assistant to the surgeon at the headquarters of the Chinese combat command near Kunming, was recently awarded the Presidential Unit Citation for his service with the India-China Wing of the Army Transport Corps and is also entitled to wear two bronze stars on his Asiatic-Pacific Campaign Ribbon, one for service in India and the other for service in China. Dr. Lowy graduated from

the University of Illinois College of Medicine, Chicago, in 1940 and entered the service in October, 1942.

WARREN

Lt. Comdr. James W. Firoved of Monmouth just returned after two years in the South Pacific. He is going to Philadelphia for special training.

GENERAL

BOND

J. D. Chittum, dean of Bond County's physicians at the age of 84, was elected president of the Bond County Medical Society at the May meeting. Dr. Chittum has been in practice 54 years. His election to the leadership in Bond County was in recognition of his achievement in carrying the heavy medical burden of a large community under the stress of war-time doctor shortages, as well as in recognition of his long service.

BOONE

John H. Brantley, Poplar Grove, recently completed fifty years in the practice of medicine.

BUREAU

Bureau County lawyers and their wives recently entertained members of the Bureau County Medical Society and the Woman's Auxiliary. F. J. Spaab of Chicago, F.B.I. agent was the guest speaker. Rep. Fred Rennick of Buda, President of the Bureau County Bar Association presided.

COOK

The twelfth annual meeting of the health division of the Council of Social Agencies of Chicago was held in the ballroom of the Standard Club, May 16. Among the speakers were Drs. Robert S. Berghoff on "Tuberculosis Control in the State of Illinois including County of Cook," and Reginald M. Atwater, New York, "Realistic Planning for Community Health."

R. Wendell Harrison, Dean of the Division of the Biological Sciences of the University of Chicago, has been appointed to the Committee on Publications in Biology and Medicine of the University of Chicago Press. Dean Harrison has been on the faculty of the University since 1937, previously having taught at Washington University (St. Louis) and Southern Methodist University. He is a member of the editorial board of the *Journal of Infectious Diseases*, and widens the scope of the Committee by bringing to it his specialized interests not only in the fields of bacteriology and immunology, but in oral bacteriology and dental caries. Other members of the Committee include: William H. Taliaferro, Eliakim Hastings Moore Distinguished Service Professor of Parasitology, Chairman of the Department of Bacteriology and Parasitology, Adviser to the President in Biological Sciences; Franklin C. McLean, M.D., Professor of Pathological Physiology; C. Phillip Miller, M.D., Professor of Medicine; Thomas Park, Associate Professor and Secretary of the Department of Zoology and Associate Dean of the Division of the Biological Sciences; Lester R. Dragstedt, M.D., Professor of Surgery. The Committee advises the University of Chicago Press of research suitable for publication, plans needed texts, and acts as a publishing outlet for valuable work now being done throughout the country in the biological and medical fields.

Max Thorek delivered the Commencement Address at the Iowa Wesleyan College, Sunday, May 27, and received the Honorary Doctor of Science Degree on that occasion. He spoke on "Medicine in a Mad World."

Colleagues of the late Dr. Maurice Lamm Blatt on the pediatric staff of the Cook County Hospital are sponsoring the establishment of the Maurice Lamm Blatt Memorial Fund. Proceeds would be used to create either an annual prize for a resident or intern doing outstanding work in pediatrics or, if sufficient funds are forthcoming, a fellowship, scholarship or lectureship in pediatrics. Three categories have been designated for membership in the project: any amount up to $25, contributing membership; $25 or more, sustaining membership, and $100 or more, life membership. Checks should be made payable to Dr. Meyer A. Perlstein, chairman of the Maurice Lamm Blatt Memorial Fund, 185 North Wabash Avenue, Chicago 1.

Dr. Herman L. Kretschmer, President of the American Medical Association, has been named chairman of a committee to raise funds to pay for transferring the 276 ton Louis Pasteur Memorial statue from Grant Park to the Medical Center district on the west side, newspapers reported May 14. Ray McCarthy, president of the Medical Center Commission, said title to the memorial has been conveyed by the Chicago Park District Board. The Pasteur Memorial, a 51 ton statue on a 225 ton base, stands on the west lawn of the Chicago Natural History Museum.

The Johnson and Johnson Research Foundation has created an annual award at Northwestern University consisting of a silver medal and an honorarium of $250 to be known as the Malcolm T. MacEachern Award. The award honors Dr. MacEachern, associate director of the American College of Surgeons and director

of the program in hospital administration at the school. The award was announced at a National Hospital Day celebration in the auditorium of the American College of Surgeons, May 12, simultaneously with an announcement of a five year grant of $75,000 to the program in hospital administration, including scholarships, also from the Johnson and Johnson Research Foundation, to supplement $15,000 granted two years ago. A renewal of scholarship grants by the American Hospital Supply Corporation was also announced. Since the program in hospital administration was started in September 1943, 113 students coming from seventeen states have enrolled in one or more of the nine new courses offered, in addition to taking background courses in other departments of the university. An advisory committee, board of consultants and faculty consisting of authorities in the hospital field assist in formulating policies of the program, conduct the courses and demonstrations and supervise the internships required before conferring degrees. Dr. Irvin Abell, Louisville, Ky., chairman of the board of regents of the American College of Surgeons, spoke on "The Significance of National Hospital Day, 1945."

Robert S. Berghoff, M.D., President-Elect of the Illinois State Medical Society was recently elected President of the Staff of Mercy Hospital.

Mercy Hospital is the oldest hospital in Illinois, established in 1850, 95 years ago. Its first location was on the North Side at Rush, foot of the Chicago River in an old frame building called "The Luke House." Three years later, Mercy Hospital had to leave the old frame structure and moved to "Tippecanoe", another frame building on Wolcott Street (now State Street) and Kinzie Street. It remained there only six months and then moved to Van Buren and Wabash where it took care of Chicago's sick for ten years, until 1863. In that year it moved to its present location at 26th and Prairie Avenue. It has been at its present location since that time. The Sisters of Mercy are celebrating their 100th anniversary of Centennial this year. Mother Genevieve is the Superior and Sister Mary Timothe is the superintendent of Mercy Hospital.

Charles F. Glore, president of Glore, Forgan & Co., investment banking firm, 135 S. La Salle st., was named general chairman of the Illinois division of the American Cancer society, to head a drive that organization launched May 29 to raise $560,000 for cancer control and research.

This quota set for Illinois is part of a 5 million dollar fund the society is seeking nationally to organize what Dr. John A. Wolfer, chairman of the group's local medical advisory committee, said will be the first comprehensive attack "on the nation's No. 2 killer."

On the basis of present knowledge, Dr. Wolfer asserted, one-third of the 17 million Americans destined to die of cancer could be saved thru early detection and treatment.

Dr. Herman N. Bundesen, president of the Chicago board of health, has announced the appointment of Dr. William David Jack, 105 E. Delaware pl., to the board's consulting staff. Dr. Jack, senior physician of Henrotin hospital and associate professor of internal medicine at Loyola university, replaced the late Dr. Irving S. Cutter, former health editor of The Tribune, on the consulting staff.

JEFFERSON-HAMILTON

Jefferson-Hamilton County Medical Society met at the Good Samaritan Hospital, Mt. Vernon in April with Dr. Richard J. Payne discussing "Bronchoscopy, Its Indications, Use and Limitations" and Dr. A. H. Diehr talking on "Skeletal Traction." Following the scientific program a buffet luncheon was served by the nurses and Sisters of St. Francis.

KNOX

Mrs. Fred Hambrecht was hostess to members of the Woman's Auxiliary to the Knox County Medical Society on May 1st.

LAKE

The Lake County Medical Society sponsored a benefit performance by the Waukegan Philharmonic Orchestra and Chorus on May 9th to raise money to purchase a mobile chest x-ray unit for the Lake County Tuberculosis Association.

LA SALLE

Nearly 200 were present at the dinner meeting held on April 26th by the LaSalle County Medical Society in honor of the wives of the doctors in service. Seven of the wives were present and told of the whereabouts of their husbands. Joseph T. O'Neil of Ottawa, presided and the principal speaker was Canfield Cook, Canadian aviation expert who talked on "Aviation in the War and in the Post-War Era."

MACON

Two Decatur doctors, Will C. Wood and M. D. Pollock, received 50-year buttons from the Illinois State Medical Society at the Macon County Medical Society meeting held on April 24th. The buttons with certificates of service were awarded by I. H. Neece, Councilor for the Seventh District. Dr. Wood began practise in Decatur in 1898, after two years in Chicago and Dr. Pollock began practise in Decatur in 1895.

L. W. Avery of the University of Illinois College of Medicine spoke on "Mental Changes of Old Age."

MADISON

Paul H. Pernworth, Venice, addressed the student branch of the American Pharmaceutical Association at the St. Louis College of Pharmacy, St. Louis, March 22 on "Practical Application of Certain Pharmaceutical Agents to Clinical Medicine and Surgery."

Major August Daro, Medical Corps, Chief of obstetrics and gynecology at Scott Field, parent radio school of the A A F Training Command, recently addressed the Madison County Medical Society on "Obstetrics of the General Practitioner." The meeting was held at Granite City. Before entering the service three years ago, Major Daro was chief of obstetrics at Cook County Hospital, Chicago.

MERCER

Nellie E. Marsh of Aledo was elected President of the Mercer County Medical Society at the annual meeting held in April. C. M. Murrell of Sherrard was elected Vice-President and V. A. McClanahan of Aledo was reelected Secretary-Treasurer for the 25th year. Harold M. Camp was the principal speaker, presenting a talk on "Postwar Medical Service."

ROCK ISLAND

More than 200 women, representing different organizations of Rock Island county, attended the annual tea of the Woman's Auxiliary to the Rock Island County Medical Society held on April 25th. Mrs. George W. Koivun introduced the guest speaker, Dr. Rudolph G. Novick, Director of the Illinois Society for Mental Hygiene, who spoke on the subject "Why Women are Nervous."

ST. CLAIR

George H. Van Dusen became superintendent of the Christian Welfare Hospital, East St. Louis, on April 5th.

UNION

The members of the Union County Medical Society have completed physical examinations for the five elementary schools in the county, assisted by the county school nurse. A total of 283 children were examined, 53 of whom were found to have outstanding defects. Parents of these children were urged to take them to their family physicians for further advice and treatment.

WAYNE

W. A. Hancock, 74, well known Fairfield physician who has practiced in Wayne County for 50 years was guest of honor at a dinner and meeting sponsored by the Wayne County Medical Society on April 22nd. Andy Hall, Councilor, presented the honored guest with the fifty-year medal and the certificate from the Illinois State Medical Society. Other talks were made by Dr. O. P. J. Falk of St. Louis, a long-time friend of Doctor Hancock. Dr. C. L. Peterson, pastor of the First Methodist Church, gave the address of welcome and the benediction. More than 100 attended the dinner, including many of Doctor Hancock's friends from other cities and states.

MISCELLANEOUS

The Illinois Tuberculosis Association has announced the following as its new officers for the coming year:

President, W. J. Bryan, M.D., Rockford
Vice-President, Arthur S. Webb, M.D., Glen Ellyn
Vice-President, Edward A. Jones, Dixon
Secretary, George Reid, Winchester
Treasurer, Robinson Bosworth, M.D., East St. Louis

Executive Committee:

Kenneth G. Bulley, M.D., Aurora
Harry A. Hall, Waukegan
D. F. Loewen, M.D., Decatur
F. M. Meixner, M.D., Peoria
E. F. Moore, M.D., Collinsville
Gail Wanless, Springfield
J. K. Williamson, Nashville
Lyle Wilcox, Sterling

The Central Illinois Society of Ophthalmology and Otolaryngology was recently formed for the benefit of those practicing in these specialties in the central part of Illinois. Officers include Drs. Watson Gailey, Bloomington, president; Walter D. Stevenson, Quincy, and Stuart Broadwell Jr., Springfield, vice president, and William F. Hubble Jr., Decatur, secretary-treasurer. The membership is limited to 50 and is open to members of the national board or those eligible to membership in it. Three meetings a year will be held, the first of which was in Bloomington, April 21-22.

MARRIAGES

MARTIN FISHKIN to Miss Jewel Rosenthal, both of Chicago, March 10.

HARRY S. GRADLE to Miss Audrey Hayden, both of Chicago, April 28.

DEATHS

HARRY FERRIS BEEBE, Grayslake; Chicago Homeopathic Medical College, 1894. Had practiced in Antioch for 36 years before going to Grayslake. Served in World War I and later served 5 years as head of the

Chicago Children's orphanage. Died in his home after an illness of 8 months May 17th at the age of 78.

SIMON W. BROWNSTEIN, Barnes Medical College, St. Louis, 1899. Had been chief of clinics for the Chicago Board of Health for the last 18 years. Died May 7th, aged 68.

JOSEPH C. DODDS, retired, Champaign; Northwestern University Medical School, 1889. Was former state medical director of the Modern Woodmen of America and a division surgeon for the Illinois Central Railroad. Died May 5 at the age of 80.

JOHN VERNON FERRELL, Eldorado; Chicago College of Medicine and Surgery, 1917. A past president of the Southern Illinois Medical Society, he was a practicing physician in Eldorado for 28 years. Died May 8th, aged 56 following a long illness.

HEBER M. GOODSMITH, Evanston; College of Physicians and Surgeons of Chicago, 1887; formerly member of the medical staff of the Metropolitan Life Insurance Company and medical director of the Illinois Bell Telephone Company in Chicago. Died April 9, aged 79, of chronic myocarditis.

CHARLES MORGAN MCKENNA, Chicago; Rush Medical College, 1905; professor and head of the division of urology in the department of surgery at the University of Illinois College of Medicine which he had joined in 1913 as instructor in senior surgery; specialist certified by the American Board of Urology, Inc.; member of the American Association of Genito-Urinary Surgeons and the Institute of Medicine of Chicago; president in 1922-1923 of the Chicago Urological Society; member of the American Urological Association and past president of the North Central Branch; fellow of the American College of Surgeons; a captain in the medical corps of the U. S. Army during World War I; head of genitourinary surgery at the Research and Educational Hospitals and St. Joseph Hospital; attending urologist at the Norwegian-American Hospital; attending urologist at the Cook County Hospital from 1927 to 1938. Died May 13th, aged 65, of coronary occlusion.

MAXIMILLIAN MALINA, Chicago; Chicago College of Medicine and Surgery, 1911. Had practiced medicine in Chicago more than 30 years. Died in his home May 23rd at the age of 63.

CARL G. MUEHLMANN, Pekin; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900. Also a pharmacist; for 20 years a surgeon for the Illinois Central Railroad; surgeon for the Pekin Terminal Railroad; for many years served on the U. S. Pension Board; until the time of his death examining physician for the U. S. Civil Service applicants; health officer of Pekin. Died in the Pekin Public Hospital March 13th, aged 80.

SOL E. RAVITZ, Chicago; University of Nebraska College of Medicine, 1920. Dermatology Department, Mercy Hospital and Loyola University School of Medicine. Died, May 19th of a heart attack, aged 49.

NEVIN G. STEVENSON, Sparta; Chicago Homeopathic Medical College, 1895. Had built and had charge of the Community Hospital in Sparta where he died, April 28th at the age of 74.

EDWIN WILFRED STUBBS, retired, Aurora; Marion-Sims College of Medicine, St. Louis, Mo., 1897. Died at Copley Hospital, Aurora, May 26th, at the age of 81.

PAUL AUGUST TESCHNER, Chicago; Marquette University School of Medicine, Milwaukee, Wisconsin, 1924. Assistant Director of the Bureau of Health Education and Public Instruction of the American Medical Association. Assistant surgeon, National Home Service in tuberculosis at Milwaukee; had practiced medicine in Gillette and Cecil, Wisconsin; formerly on staff of Wisconsin Anti-Tuberculosis Association as examiner and consulting physician. Died in his home May 24th at the age of 48.

HENRY C. WOLTMANN, Jacksonville; The Hahnemann Medical College and Hospital, Chicago, 1908. Member of the Morgan County Tuberculosis Sanatorium and former president of the Morgan County Tuberculosis and Health League. Had practiced medicine in Jacksonville for nearly 40 years; had served as attending physician at Oaklawn Sanatorium for 6 years. Died suddenly at his home April 18th at the age of 77.

GENERAL RANKIN ADDRESSES GRADUATING CLASS AT ARMY MEDICAL CENTER

Speaking on "Elements of Progress in Military Surgery," Brigadier General Fred W. Rankin, USA, Chief Consultant in Surgery to The Surgeon General, in an address to the graduating class of the Army Medical School, stated that mortality rates from serious injuries such as those involving the head, chest and abdomen, have been reduced by 50 percent and the reconstruction and rehabilitative surgery now being performed to correct the disfiguring and crippling consequences of grave injuries is little short of miraculous.

Many factors, he pointed out, are involved in the establishment and maintenance of this unparalleled record but more important than any other is the emphasis placed by the Army on a high level of professional competence and the careful and determined effort to place this professional competence where it will do the most good. As an example he cited the results of an analysis made of the assignments of surgeons either certified by specialty boards or with equivalent qualifications. This showed, said General Rankin, that "well over 95 percent are performing their appropriate functions while most of the remaining have assumed positions of even greater responsibility which their executive capacity permits and necessity dictates."

P. R. N.

The Jocular Jingles of C. G. F.

by

Charles G. Farnum M. D.
Peoria, Ill.

War always has prompted the writing of poetry. Of the poems written during this war very few have impressed us as has Ritual, written by Venard McLaughlin, of Phoenix, Arizona. Mr. McLaughlin has graciously permitted us to include it in this column.

RITUAL

These are your altars, Man:
A snouted, sweating, steel-clad tank
With smoking jaws and bloody flank,
A-prowl in fluid deadly rank.
This is your altar, Man.

And high above — the echelon
Intent with death to hurtle on
To make of living, carrion.
This is your altar, Man.

Beneath the sea a long steel shark,
In silence through a gray-green dark.
To rise, to kill, to find a mark.
This is your altar, Man.

Those well-sung pits dug deep in mud,
Anointed fresh with human blood,
One added stream to world-wide flood.
This is your altar, Man . . .

This is your sacrifice:
The temples tall youth might have made,
The temple thoughts now left unsaid;
The ills of men they might have stayed.
This sacrifice, O God.

The songs, the words, they might have sung,
The secrets dread they might have wrung
From earth; the courage of the young.
This sacrifice, O God.

The better world their lives could find
In tune with life and God's own mind,
The course of stars they might have lined.
This sacrifice, O God.

The loves, the joys they might have known,
The seeds of good they might have sown,
The flags of right they might have flown.
This sacrifice, O God.

These are your altars, Man,
And this your sacrifice;
What is the world you plan
For this, your sacrifice?

Venard McLaughlin

BARNES HOSPITAL

I have slept in homes domestic,
In hotels almost majestic,
And in every sort of place I've laid my poll.
I have slept on sleeping porches,
I have slept where camp fire scorches,
I have slept in sleeping bag and blanket roll.

I have slept while riding horses,
On the ground, which one endorses,
I have sometimes gone to sleep while standing up.
I have gone to sleep while walking,
I have often slept while talking,
I have curled up in a corner like a pup.

I have gone to sleep when driving
In an auto, yet surviving,
And in every kind of tent I've taken rest,
I have slept on chair and table,
In a tree and in a stable,
I have even slept in wigwams in the West.

For I took sleep where I found it,
And I did not walk around it,
And I did not utter damns or even darns;
But just now comes my undoing,
For with all my careful wooing,
There is one place I can't sleep and
that's in BARNES.

VICARIOUS GOLF.

I'm sure that you agree with the contention:
Necessity's the mother of invention;
And since I cannot play
My golf the usual way,
I now have something new worth your attention.

Sand traps and rough no longer terrorize me,
There are no hooks or slices to surprise me,
I'm all urbanity,
No more profanity,
All golf's vagaries now can't victimize me.

I play my game with amicability,
My soul is filled with peace and tranquility,
I happily proclaim
I've licked the lousy game;
Relieved am I of responsibility.

I chuckle and I laugh hilariously
For now I play the game vicariously;
I think I am quite foxy
To play my golf by proxy
While others struggle on precariously.